Leaptronix®

User's Manual

AH-160M Series [Hardware & Software]

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Chapter 1 Description

1-1 Introduction

LEAP ELECTRONIC CO., LTD (LEAP), has been committed to the IC programming service since 1980.To provide customer from personal device to factory automated equipment programming solution.

Due to present automated programming machine is quite large and complex. To shorten programming various IC waiting time, We, Leap, specially launch small semi-automated IC programmer- AH160 to meet customer's demand for automated programming of large capacity FLASH components. You can use this in factory or office environment. In fact, AH160 is the most extra value product because of its characteristics of high efficiency, high-quality, space-saving, and low build cost. It has extraordinary performance advantage especially for some disk mounted ICs that took long time to program, such as TSOP48, TSOP56, and eMMC.

1-2 Safety Precautions

All operation, maintenance and repair need follow below safety precautions. We do not take responsibility caused by not following these precautions to result any unexpected problems.
Make sure the internal parts are locked and fixed and remove all the connecting wires before moving or storage the product.

- Please use the standard accessories and software while using the product.
- Do not operate this product beside flammable gas, flam, or in hot & humid environment.
- Make sure all the screws, tools are placed properly and do not left them inside while using the product.
- Please try to avoid using old IC to program, it may cause low yield rate or failed.
- Please turn off the power while removing and replacing the component in case of electric shock.
- Do not remove and replace the non-wear and non-replace components.
- The sockets or any IC package adapters of this product are consumable. The usage life is based on different sockets and adapters. If you use it for too long, the sockets may have bad contact and cause low programming yield rate or even programming failure.
- While using this product to program master tape which is used before mass production, please do the complete testing and use it after confirmation.
- Please contact with our professional technical personnel or distributor if the device is out of order, do not repair it by yourself.
- Please contact with our distributors and our personnel if you have any problems on this product.
- This manual is delivering with AH-160M model, but we won’t update and ship the

latest manual to the end users. (If there is a new version of AH-160M.)

- The ownership of manufacturers or trademarks mentioned in this document or references belong to the companies or organizations.

1-3 Appearance and Accessories

Fig. 1-1 AH-160M appearance

· AH-160M Main Unit	1 PC
· CD	1 PC
· USB cable	1 strip
· AC power cord	1 strip
· PU extension tube (Only for the external connected pneumatic supply model)	1 strip
· Vacuum Nozzle	Depend on programmers
· Compressed Tablets	Depend on programmers
· Socket Board	Depend on programmers

1-4 Specification

Item	Specification
Performance	550 U.P.H.(Only Mechanical Movement)
Repeatable Resolution	X-axis:±0.03mm Y-axis:±0.03mm Z-axis:±0.2mm Press-bar:±0.01mm
Stroke	X-axis:420mm Y-axis:310mm Z-axis:18mm Press-bar:5mm
Position System	Precissor (30X30mm)
Programmer	Depend on programmers
Adapter supported	Depend on programmers
Devices support	Depend on programmers
Files formats supported	Depend on programmers
Tray Input/Output	JEDEC standard
Input voltage	AC 100 ~ 240V, 50 ~ 60Hz, Single phase three wire
Input Pressure	0.6MPa (About 6.0Kg/cm3), 32Liter/Min. (Only for the external connected pneumatic supply model)
Power consumption	200W
Dimension	762(H) × 734(L) × 552(W)mm
Net Weight	70Kg
Operating temperature	+5℃ ~+45℃
Operating Humidity	20% ~ 90%, No congealing

1-5 Operating Requirement

Item	Spec
Operating System	Microsoft Windows XP, Windows Vista, Windows 7, Windows 8 (32 bits/ 64 bits) and above
CPU	Intel Core 2 Due or above
Memory	1 GB RAM above
Hard disk	500MB above, Buffer: 1GB above (Depends on the programming specification)
Display	1024 × 768 Pixels above
Communication	USB 2.0

Chapter 2 Name of Each Component

Fig. 2-1 The forward appearance

1. Tower light
2. Emergency Stop Switch
3. Cabin Door Handlee
4. Cabin Door

Fig. 2-2 The lateral appearance

5. ID Sticker
6. Power Switch
7. Fuse
8. AC Power Socket
9. USB Port
10. Pneumatic power input (Only for the external connected pneumatic supply model)

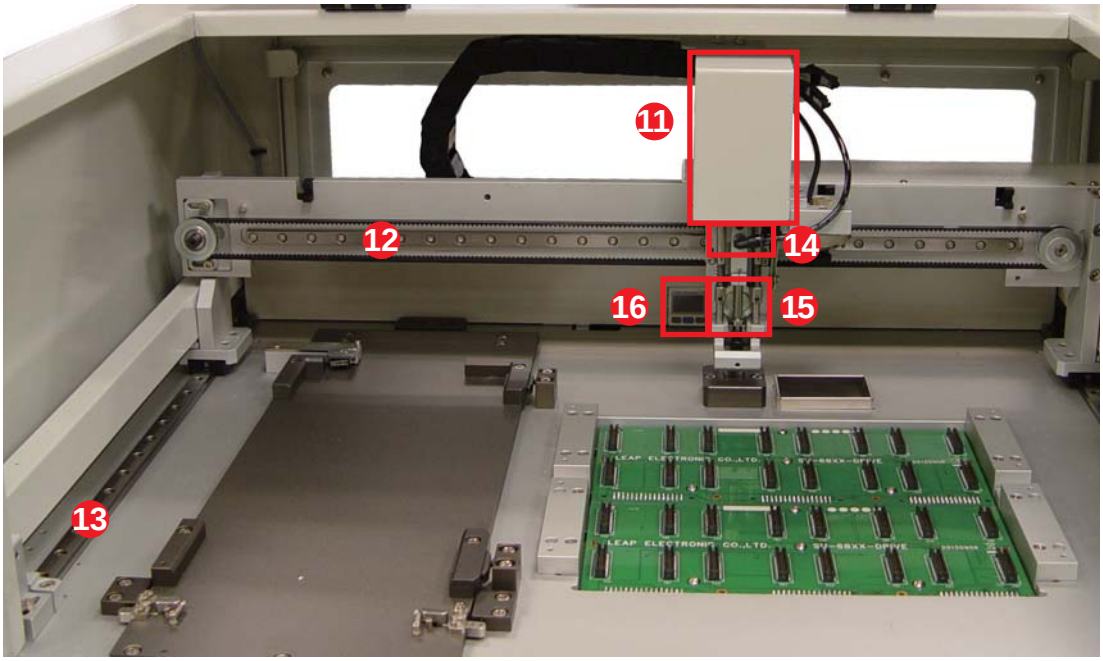


Fig. 2-3 Platform appearance 1

11. Z-Axis
12. X-Axis
13. Y-Axis
14. Vacuum Nozzle
15. Press-bar
16. Vacuum Sensor

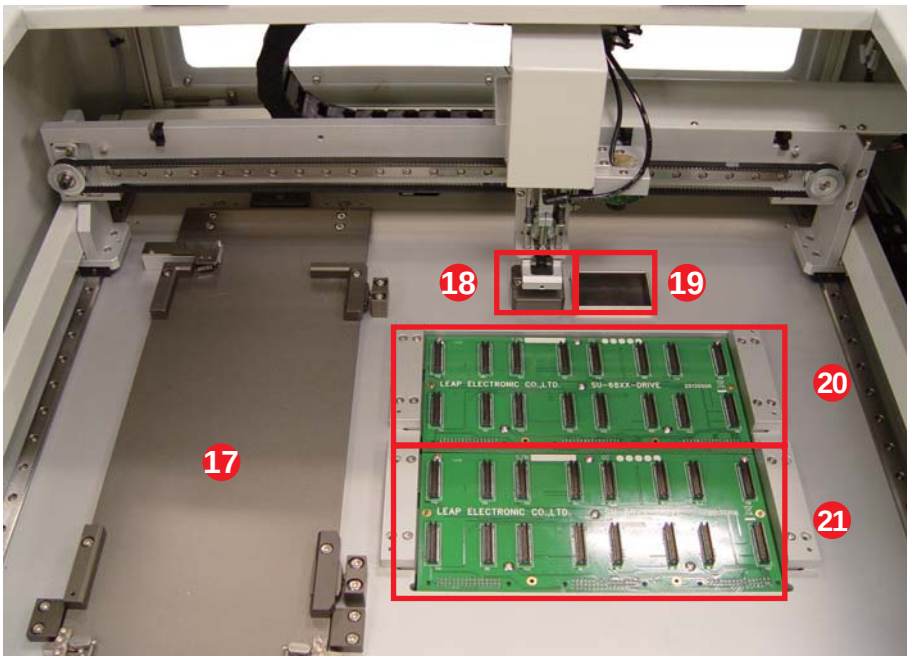


Fig. 2-4 Platform appearance 2

17. Input and Output Tray
18. Precissor
19. Fail Zone
20. Programmer 1
21. Programmer 2

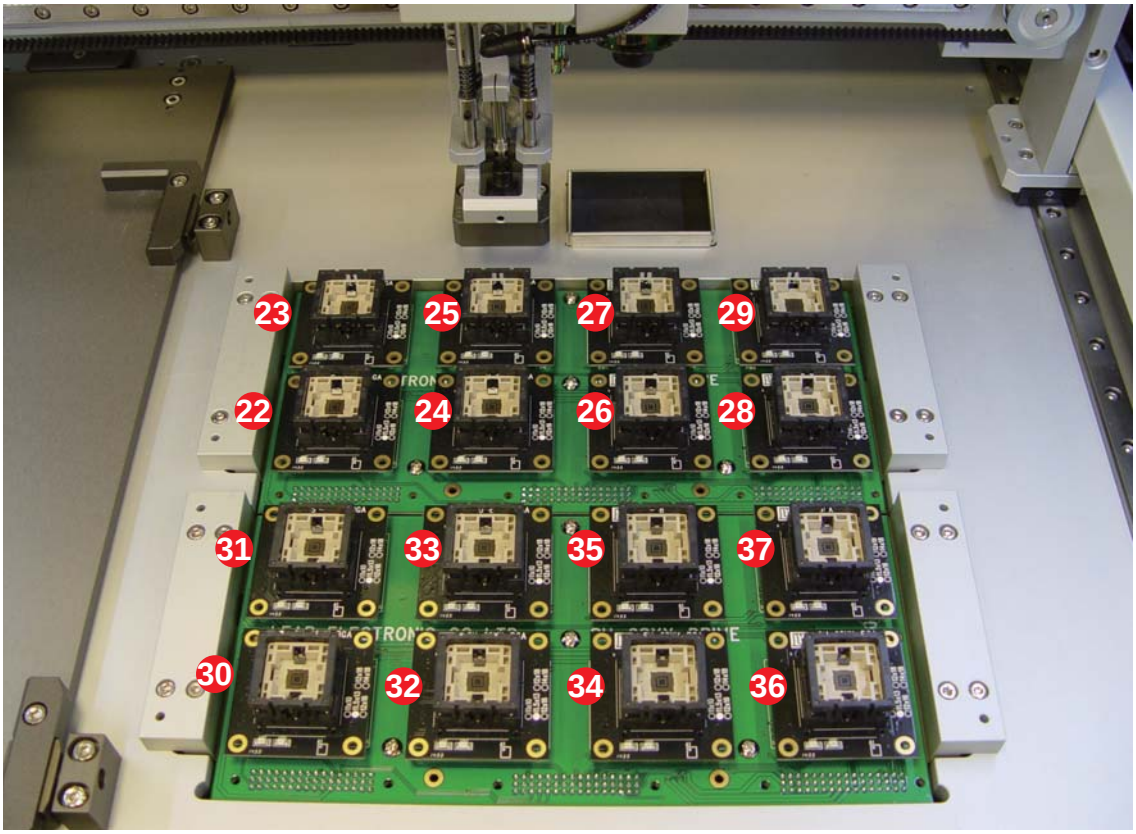


Fig. 2-5 Placement of programmers and sockets

22. Socket 1-1
23. Socket 1-2
24. Socket 1-3
25. Socket 1-4
26. Socket 1-5
27. Socket 1-6
28. Socket 1-7
29. Socket 1-8
30. Socket 2-1
31. Socket 2-2
32. Socket 2-3
33. Socket 2-4
34. Socket 2-5
35. Socket 2-6
36. Socket 2-7
37. Socket 2-8

Chapter 3 Installation

3-1 Preparation work

- Phillips screwdriver 1
- Hex wrench 1
- Computer 1

3-2 Hardware Installation

Before first operating AH-160M, please confirm that 3 retaining pins are removed and the tower light is installed. (Also make sure the circuit is connected.) If you need to storage or move this product, please turn off the power before locking the retaining pins and removing the tower light to avoid any damages.

3-2-1 Remove the Retaining Pins

Please turn off the power first and confirm the retaining pins are removed before operating AH-160M. (As below red circuits.) Also make sure it will not cause any collision during the operating process.

Step 1. Remove the retaining pins of the device cabin and take care of it. The retaining pins are respectively installed in the rear on both sides of the Y-axis and X-axis.

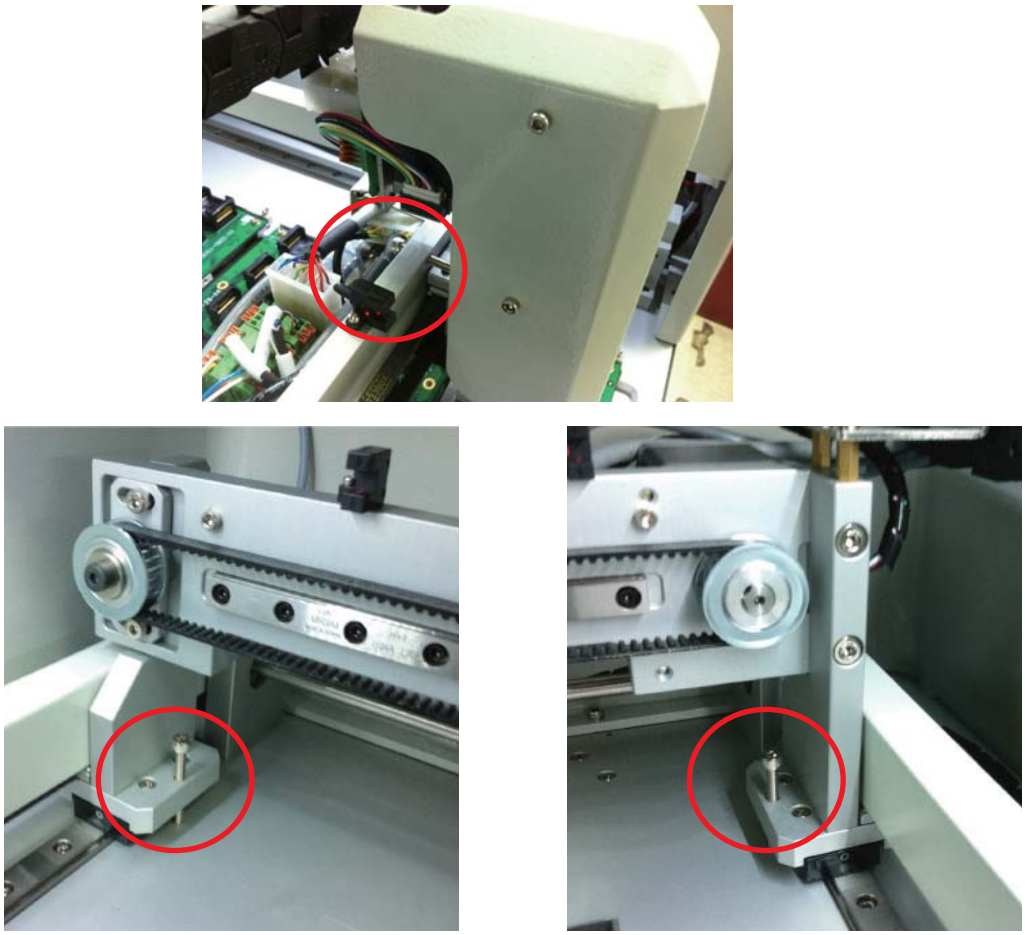


Fig. 3-1 The position of retaining pins

Step 2. Please use the standard USB cable and connect it with the computer. Please remove any USB on the computer so that it won't affect the installation and operation.

Step 3. Please confirm the right electric socket and the specification

(It is single phase three wire, 110V to 240V, 50 to 60 Hz AC power.)

3-2-2 Tower Light Installation

Before operating AH-160M, please make sure the tower light is installed correctly before turning on the power. Also make sure it can display the correct information while operating.

Step 1. Open the cabin door below the machine and take off the tower light.

Fig. 3-2 The place for storage the tower light.

Step 2. Remove the screws from the top of AH-160M which are used for fixing the tower light.

Fig. 3-3 Removing the screws

Step 3. Install the tower light on the top of AH-160M. Thread the wire through the hole on the top of the machine, then locking the 3 screws.

Fig. 3-4 Installing the tower light

Step 4. Connect the circuit of the tower light. Open the cabin door and connect it. Please pay attention to the right direction to connect since it is fool-proofing on the two sides of the circuit.

Fig. 3-5 The connection of the circuit

3-3 Software Installation

Insert the AH-160M CD into the computer and it will show the installation window. If it does not execute automatically, please go to “My Computer” → ”C Disk” and execute “Install. exe” to start the software installation. (Take Windows 7 64bit for example.)

Fig. 3-6 AH-160M software installation

3-3-1 AH-160M Driver Installation

Step 1. Click “Install AH-160M Driver” and enter AH-160M Driver Installation.
(Prolific PL-2303 USB-to-Serial driver).
Click “Yes” to process with the installation.

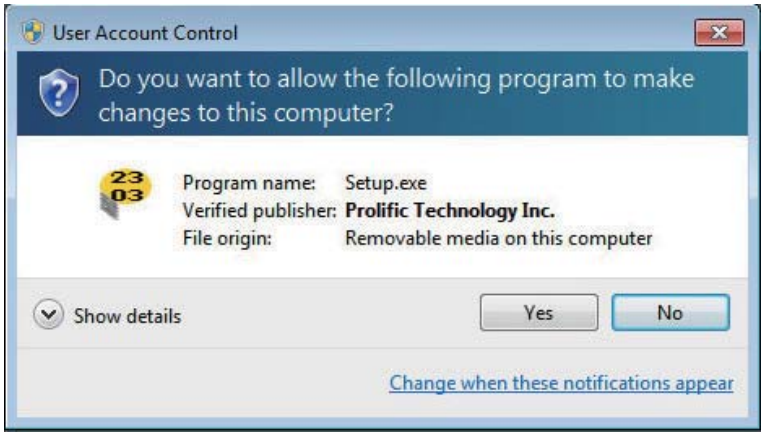

User Account Control
Do you want to allow the following program to make changes to this computer?
Program name: Setup.exe
Verified publisher: Prolific Technology Inc.
File origin: Removable media on this computer
Show details
Yes
No
Change when these notifications appear

Fig. 3-7 Install AH-160M driver 1

After clicking, if can not start up the program or did not show the installation page, please go to the follow for installation.

D:\USBDrv\PL2303_Prolific_DriverInstaller_v1.xx.0.exe

Step 2. It shows the install driver window, please click “Next” and process with the installation.

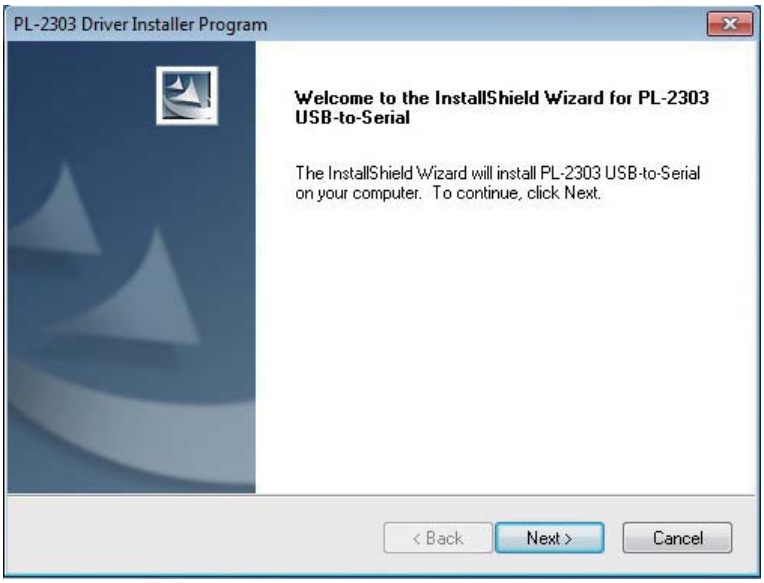
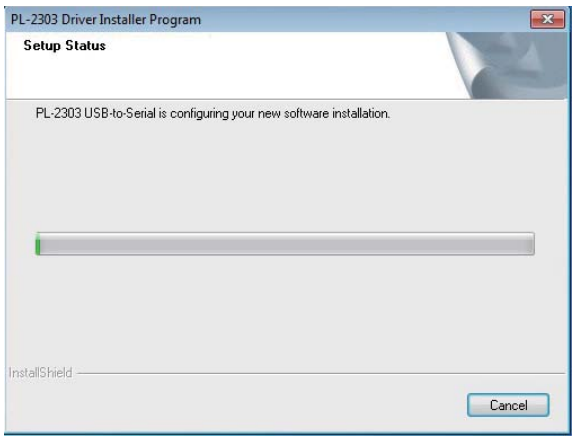

PL-2303 Driver Installer Program
Welcome to the InstallShield Wizard for PL-2303 USB-to-Serial
The InstallShield Wizard will install PL-2303 USB-to-Serial on your computer. To continue, click Next.
< Back
Next >
Cancel

Fig. 3-8 Install AH-160M driver 2

Step 3. Finally click “Finish” to finish installing.



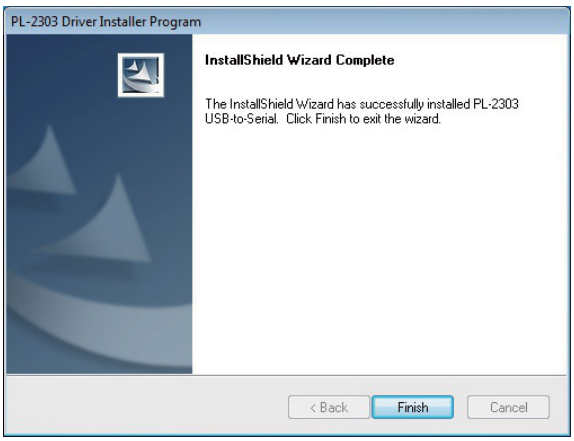

PL-2303 Driver Installer Program
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed PL-2303 USB-to-Serial. Click Finish to exit the wizard.
< Back
Finish
Cancel

Fig. 3-9 Install AH-160M driver 3

3-3-2 Microsoft Visual C++ 2005 Redistributable Package Installation

Before install the AH-160M software, must install Microsoft Visual C++ 2005 Redistributable Package.

Step 1. Go to Microsoft website to download and execute Microsoft Visual C++ 2005 Redistributable Package.

Step 2. It will show the license agreement window. Please confirm and click “Yes” after reading.

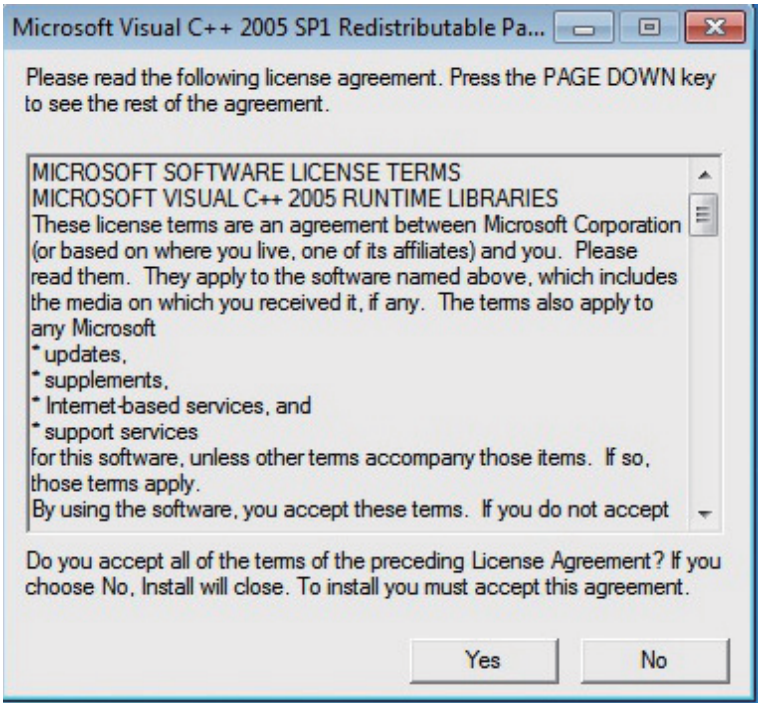

Microsoft Visual C++ 2005 SP1 Redistributable Pa...
Please read the following license agreement. Press the PAGE DOWN key to see the rest of the agreement.
MICROSOFT SOFTWARE LICENSE TERMS
MICROSOFT VISUAL C++ 2005 RUNTIME LIBRARIES
These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft
* updates,
* supplements,
* Internet-based services, and
* support services
for this software, unless other terms accompany those items. If so, those terms apply.
By using the software, you accept these terms. If you do not accept
Do you accept all of the terms of the preceding License Agreement? If you choose No, Install will close. To install you must accept this agreement.
Yes
No

Fig. 3-10 Install camera library 1

Step 3. Then it will install automatically.

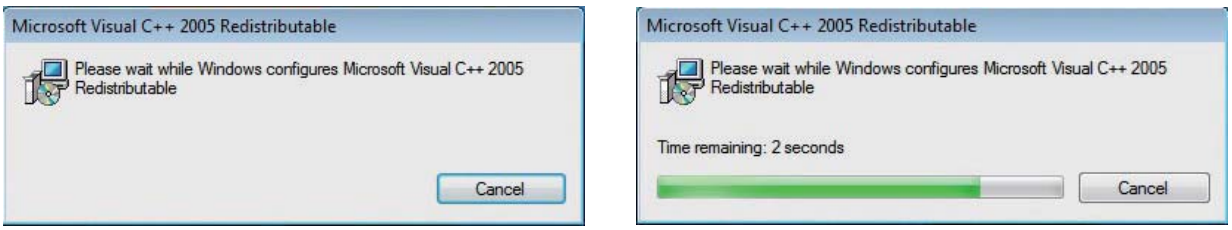

Microsoft Visual C++ 2005 Redistributable
Please wait while Windows configures Microsoft Visual C++ 2005 Redistributable
Cancel
Microsoft Visual C++ 2005 Redistributable
Please wait while Windows configures Microsoft Visual C++ 2005 Redistributable
Time remaining: 2 seconds
Cancel

Fig. 3-11 Install camera library 2

3-3-3 AH-160M Software Installation

Step 1. Click the icon, the AH-160M installation main page will show, click YES for process.

User Account Control
Do you want to allow the following program from an unknown publisher to make changes to this computer?
Program name: AH-160M_Install.exe
Publisher: Unknown
File origin: Hard drive on this computer
Show details
Yes
No
Change when these notifications appear

Fig. 3-12 Install AH-160M software 1

If the CD did not show the installation page, or If can not start up the program after clicking. Please go to D:\Exe\AH-160M_Install.exe to execute it.

Step 2. Select the language, click “Yes”.

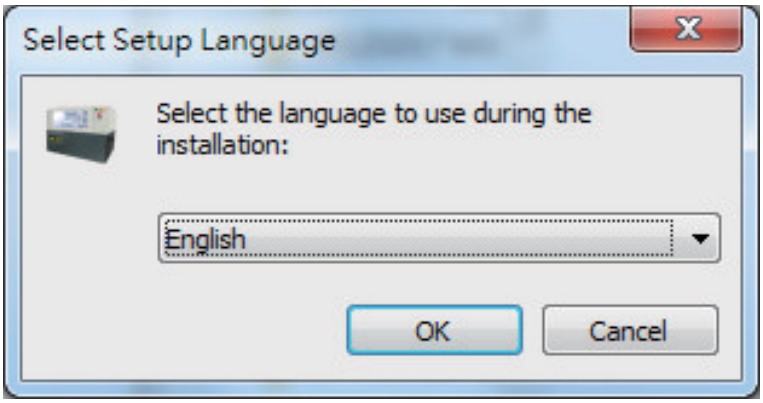


Fig 3-13 Software installation Step 2

Step 3. It shows the window and click “Next” to process with the installation.

Setup - AH-160M
Welcome to the AH-160M Setup Wizard
This will install AH-160M 1.3.5.68 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

Fig. 3-14 Install AH-160M Software 2

Step 4. Select the destination location and folder. Click “Next” to continue.

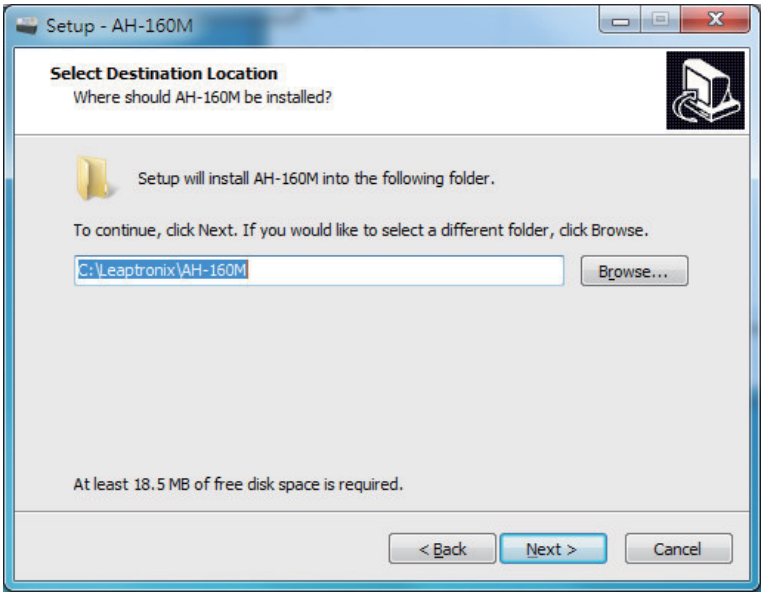

Setup - AH-160M
Select Destination Location
Where should AH-160M be installed?
Setup will install AH-160M into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Leaptronix\AH-160M
Browse...
At least 18.5 MB of free disk space is required.
< Back
Next >
Cancel

Fig. 3-15 Install AH-160M software 3

Step 5. Select the start menu folder and click “Next” to continue.

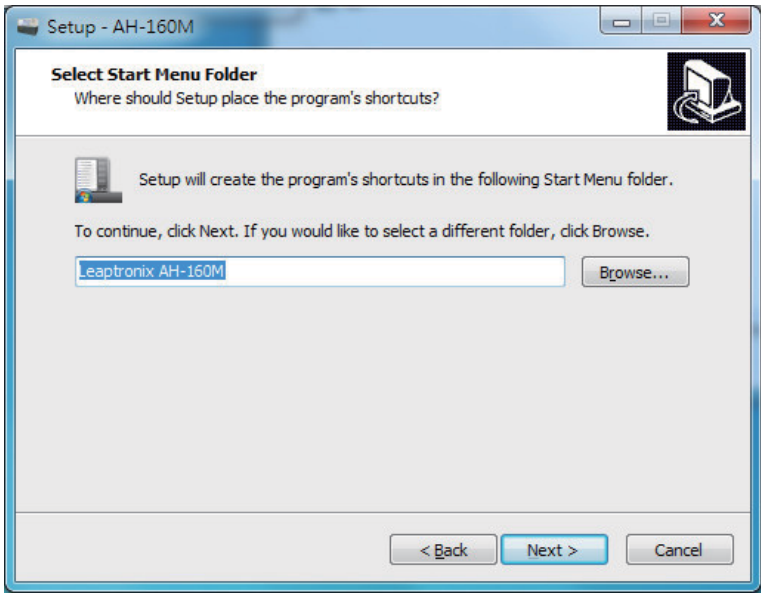

Setup - AH-160M
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
Leaptronix AH-160M
Browse...
< Back
Next >
Cancel

Fig. 3-16 Install AH-160M software 4

Step 6. Choose to add the new icon on the computer desktop or not.
Click “Next” to continue.

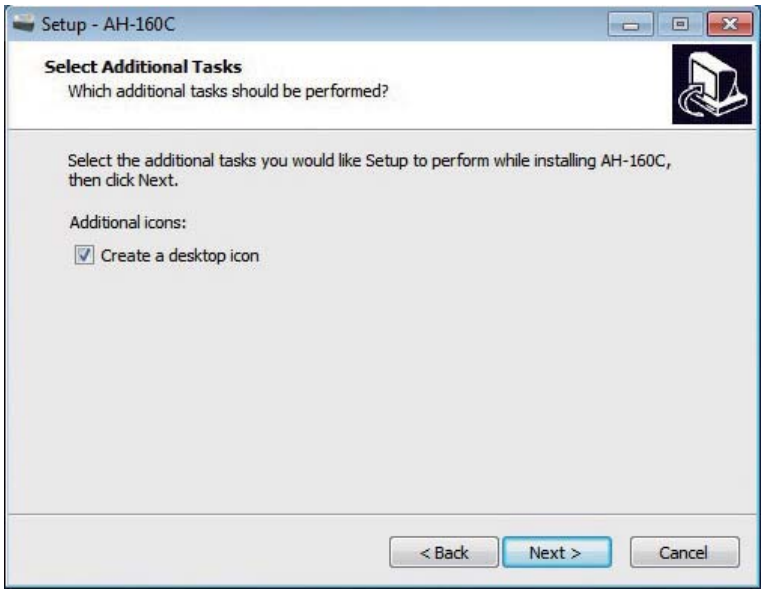

Setup - AH-160C
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing AH-160C, then click Next.
Additional icons:
Create a desktop icon
< Back
Next >
Cancel

Fig. 3-17 Install AH-160M software 5

Step 7. Confirm that all procedures are correct and click “Install”.

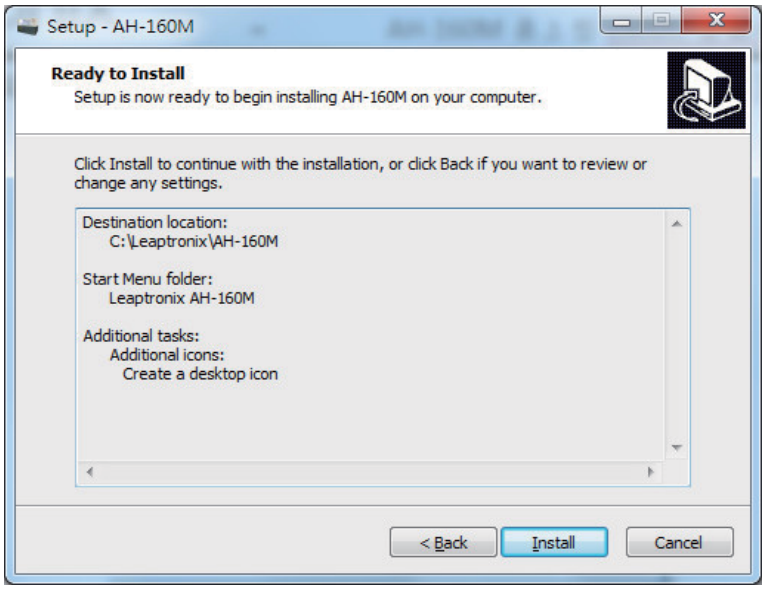

Setup - AH-160M
Ready to Install
Setup is now ready to begin installing AH-160M on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Leaptronix\AH-160M
Start Menu folder:
Leaptronix AH-160M
Additional tasks:
Additional icons:
Create a desktop icon
< Back
Install
Cancel

Fig. 3-18 Install AH-160M software 6

Step 8. Finally, click “Finish” to complete installation.

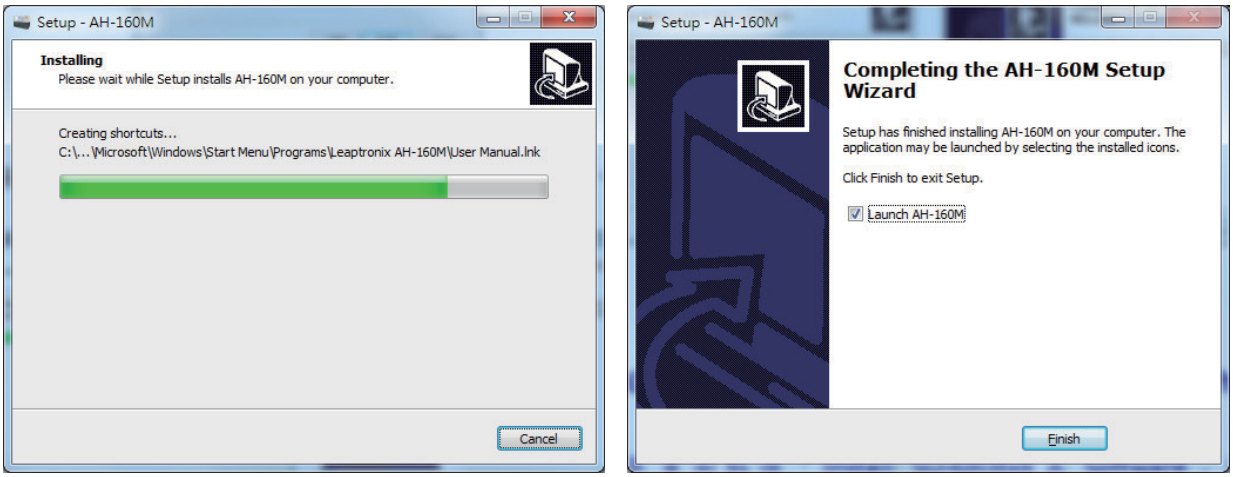

Setup - AH-160M
Installing
Please wait while Setup installs AH-160M on your computer.
Creating shortcuts...
C:\...\Microsoft\Windows\Start Menu\Programs\Leaptronix AH-160M\User Manual.lnk
Cancel
Setup - AH-160M
Completing the AH-160M Setup Wizard
Setup has finished installing AH-160M on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Launch AH-160M
Finish

Fig. 3-19 Install AH-160M software 7

3-3-4 Net Framework 3.5 SP1 Installation (Install .Net Framework 3.5 SP1)

If the PC system is Microsoft Windows XP, Windows Vista, Windows Server 2003, or Windows Server 2003, before install SU-6808 software, must make sure the OS is included Microsoft .Net Framework 3.5 Service Pack 1 module. You can go to Microsoft website download it or find and execute it in the CD. If the PC is Windows 7 or Windows 8, please ignore the follow steps.

Step1. Go to the website to execute Microsoft .Net Framework 3.5 Service Pack 1.

The follow page will show, click “Next” for continuing.

Microsoft .NET Framework 3.5 SP1 Setup
Welcome to Setup
Microsoft .net Framework
Be sure to carefully read and understand all the rights and restrictions described in the license terms. You must accept the license terms before you can install the software.
MICROSOFT SOFTWARE SUPPLEMENTAL
Press the Page Down key to see more text.
Print
I have read and ACCEPT the terms of the License Agreement
I DO NOT ACCEPT the terms of the License Agreement
Send information about my setup experiences to Microsoft Corporation.
Details regarding the data collection policy
Download File Size: 96 MB
Download Time Estimate: 3 hr 55 min (56 kbps)
25 min (512 kbps)
Install >
Cancel

Fig3-20 Welcome page of .Net Framework 3.5 SP1

Step 2. Click “Exit” to finish. Net Framework 3.5 SP1.

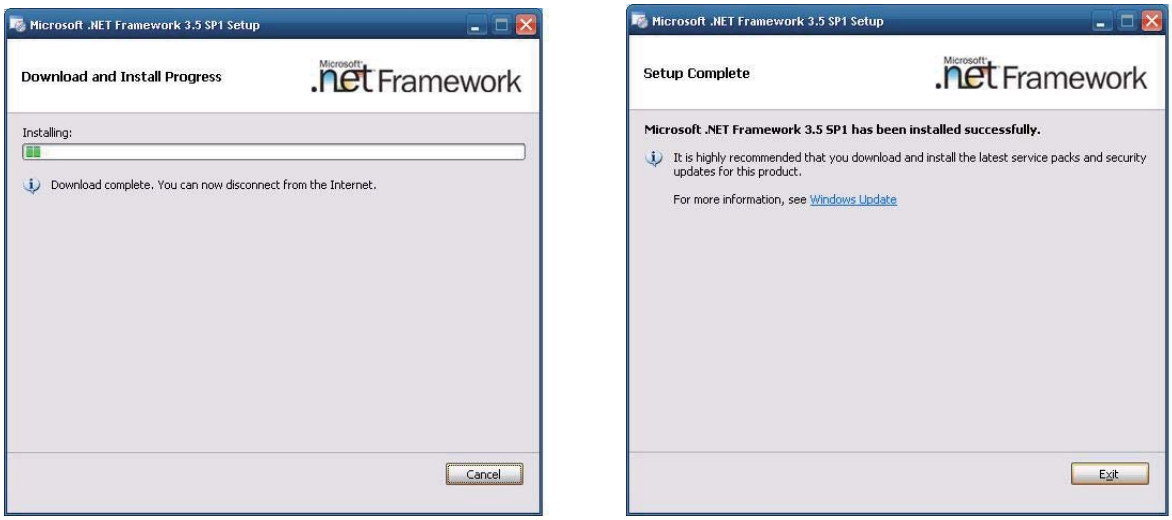

Microsoft .NET Framework 3.5 SP1 Setup
Download and Install Progress
Microsoft .net Framework
Installing:
Download complete. You can now disconnect from the Internet.
Cancel
Microsoft .NET Framework 3.5 SP1 Setup
Setup Complete
Microsoft .net Framework
Microsoft .NET Framework 3.5 SP1 has been installed successfully.
It is highly recommended that you download and install the latest service packs and security updates for this product.
For more information, see Windows Update
Exit

Fig 3-21 Installation of .Net Framework 3.5 SP1

3-3-5 SU-6808x8_A Installation (Install SU-6808x8_A Software)

Step 1. Click the icon and enter the SU-6808X8_A welcome page. Click “Next” for continuing.

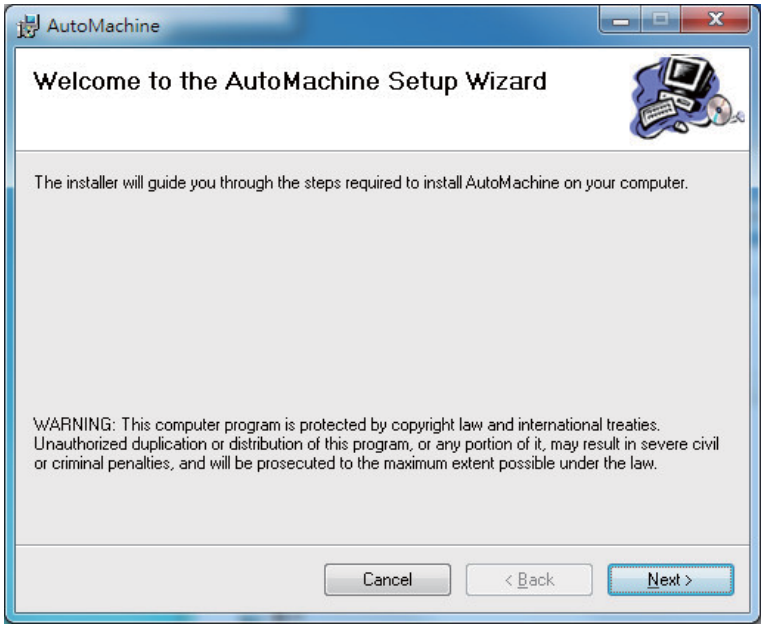

AutoMachine
Welcome to the AutoMachine Setup Wizard
The installer will guide you through the steps required to install AutoMachine on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

Fig 3-22 SU-6808x8_A Installation 1

If the CD did not show the installation page, or If can not start up the program after clicking. Please go to D:\SU6808\AutoMachineSetup.msi to execute it.

Step 2. Confirm the installed path and file name. Click “Next”.

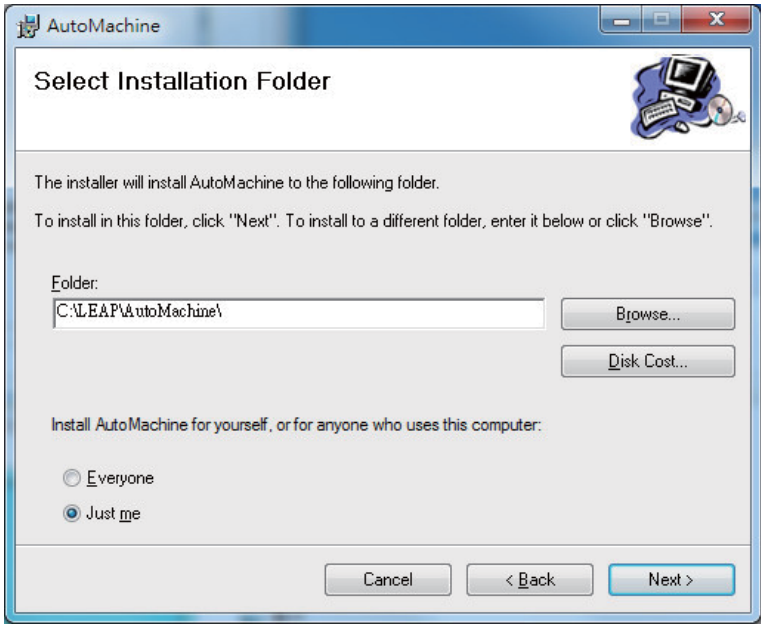

AutoMachine
Select Installation Folder
The installer will install AutoMachine to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\LEAP\AutoMachine\
Browse...
Disk Cost...
Install AutoMachine for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

Fig 3-23 SU-6808x8_A Installation 2

Step 3. Confirm the message are correct and click “Next”.

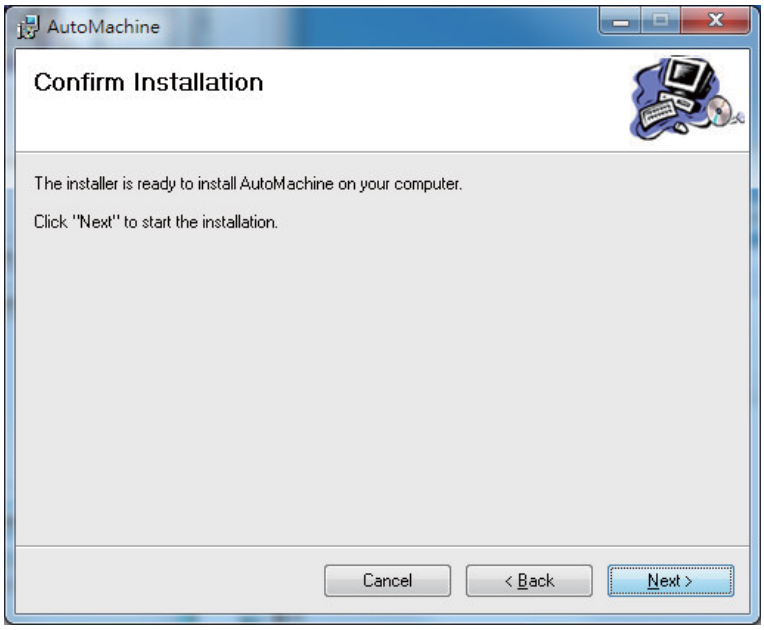

AutoMachine
Confirm Installation
The installer is ready to install AutoMachine on your computer.
Click "Next" to start the installation.
Cancel
< Back
Next >

Fig 3-24 SU-6808x8_A Installation 3

Step 4. Click “Finish”.

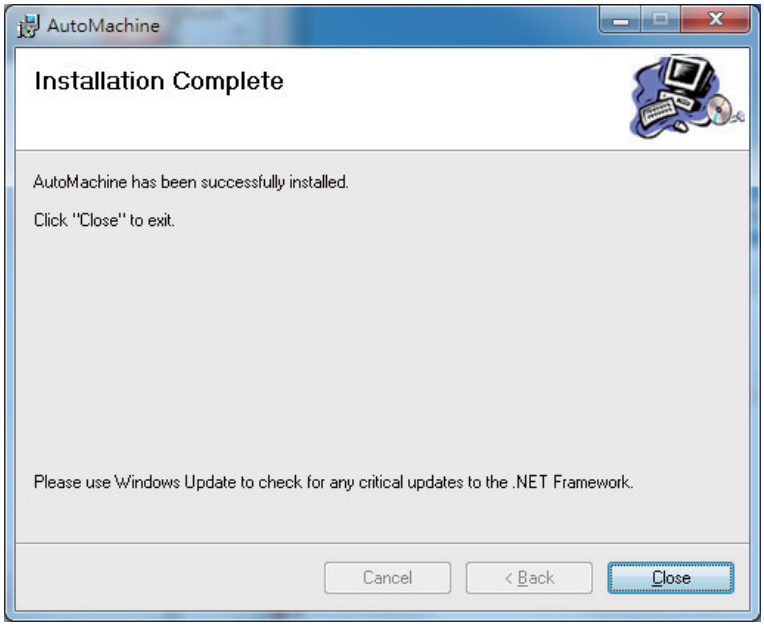


Fig 3-25 SU-6808x8_A Installation 4

3-4 First Time Connection of AH-160M

Please connect the standard USB 2.0 with AH-160M and computer after installing the software and the driver. Turn on the power after connecting with the power supply and pneumatic supply and switch on power. The computer will show the message of installing device driver software and install it automatically.
(Take Windows 7 64 bit for example.)

Fig. 3-26 Installing device driver software

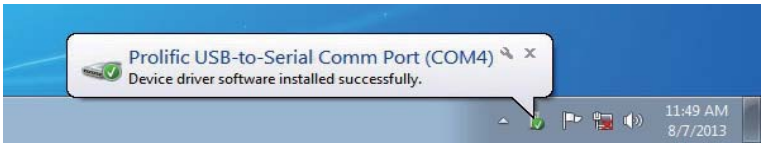


Fig. 3-27 Device driver software installed successfully

After installing, please go to device manager and confirm the installation.

Click “Start” → “Control Panel” → “System and Security” → “System” → “Device Manager”.

Unfold the Ports (COM & LPT) icon, and there are 3 sets of “Prolific USB-to-Serial COM Port” from COM3 to COM5. COM3, COM4, and COM5 are three connecting ports between AH-160M platform and the equipped programmers.

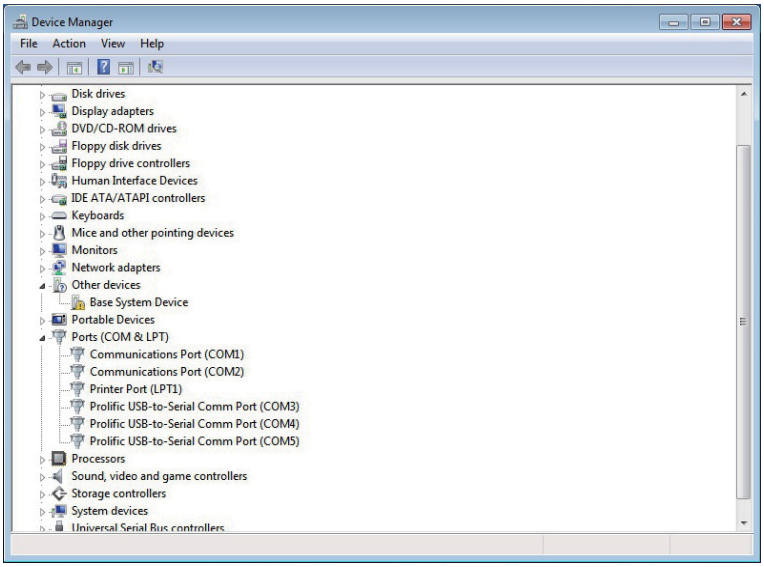


Fig. 3-28 Make sure it is installed correctly

3-4-1 SU-6808 Driver Installation

At the first time of connecting SU-6808 to AH-160M. AH-160M will recognition the programmer and show the message. If the PC connected SU-6808 before, It will be installed automatically. Otherwise, it will show “Device driver software was not successfully installed”. We will need to install it manually. We show the Win7 64 bit as an example.

Fig 3-29 Installed SU-6808 Driver Successfully

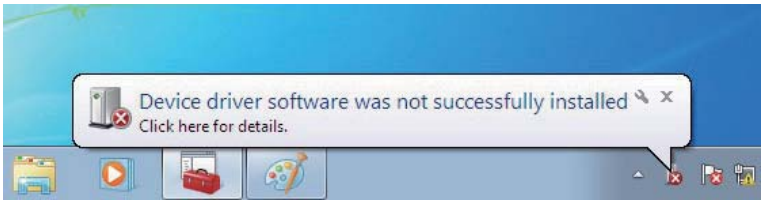


Fig 3-30 SU-6808 was not Successfully Installed

Step 1. Please go to Device Manager. Start→ Control Pane → System and Security → System → Device Manager. We can see “eMMC Programmer” under “Other Devices”.

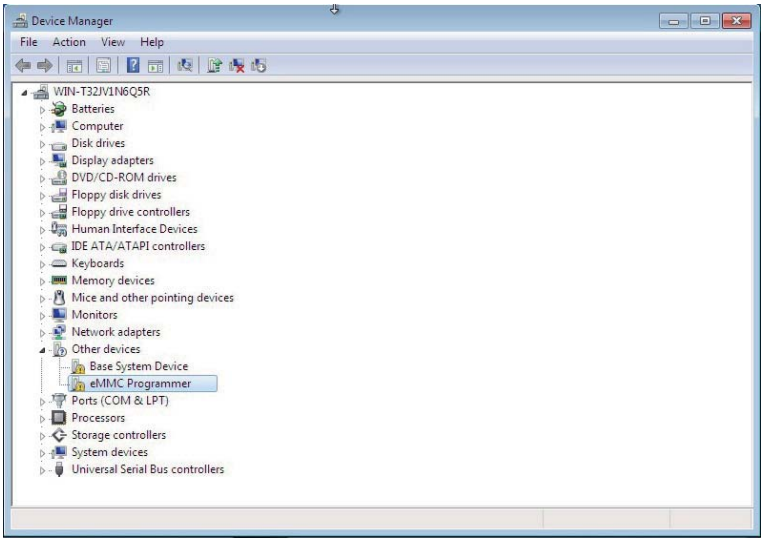


Fig 3-31 eMMC Programmer under Device Manager

Step 2. Click the item and Click “Update Driver Software”. Follow the Wizard.

Step 3. Ask if would like to search the driver automatically. Click “Browse my computer for driver software”.

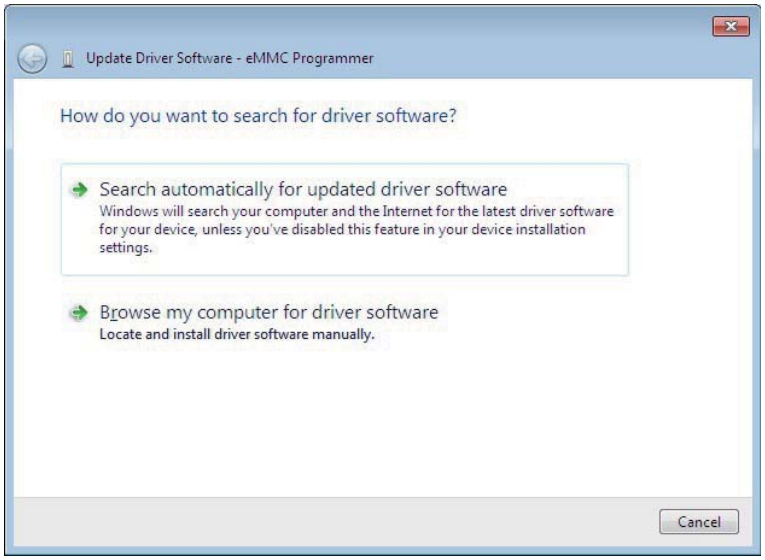

Update Driver Software - eMMC Programmer
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
Browse my computer for driver software
Locate and install driver software manually.
Cancel

Fig 3-32 SU-6808 Driver Installation Step 1

Step 4. To designated driver installation path,

If 64bit, please select C:\LEAP\AutoMachine\Driver\Win7(64bits)

If 32bit, please select C:\LEAP\AutoMachine\Driver\XP(32bits)

Click “Next” to finish.

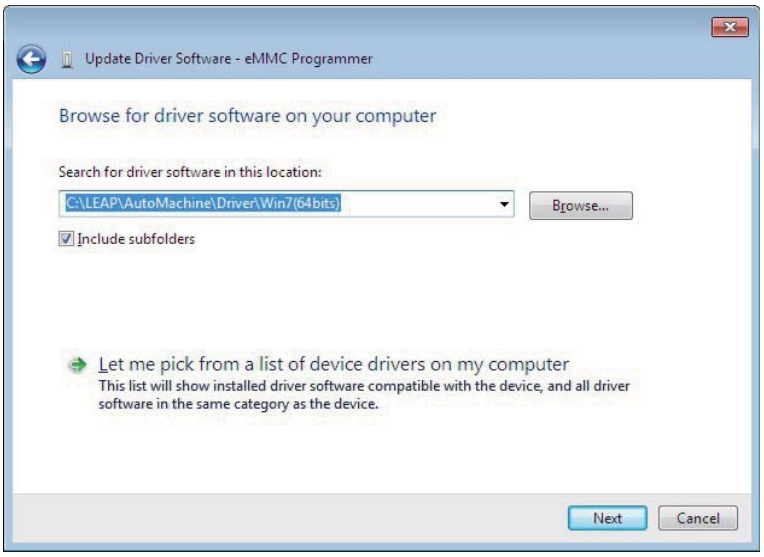

Update Driver Software - eMMC Programmer
Browse for driver software on your computer
Search for driver software in this location:
C:\LEAP\AutoMachine\Driver\Win7(64bits)
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next
Cancel

Fig 3-33 SU-6808 Driver Installation Step 2

Step 5. When show “Windows Can’t verify the publisher of this driver software”, Please select “Install this driver software anyway” to install continually.

Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

Fig 3-34 SU-6808 Driver Installation Step 3

Step 6. Click “Close” and finish the installation.

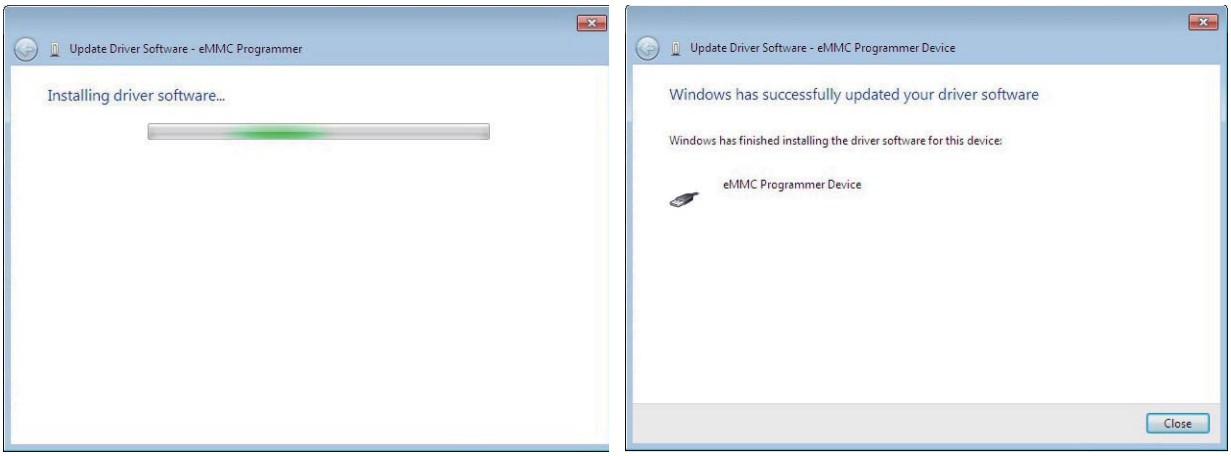

Update Driver Software - eMMC Programmer
Installing driver software...
Update Driver Software - eMMC Programmer Device
Windows has successfully updated your driver software
Windows has finished installing the driver software for this device:
eMMC Programmer Device
Close

Fig 3-35 SU-6808 Driver Installation Step 4

Step 7. Re-confirm. If the SU-6808 driver install successfully, the Device Manager will show “eMMC Programmer Device”.

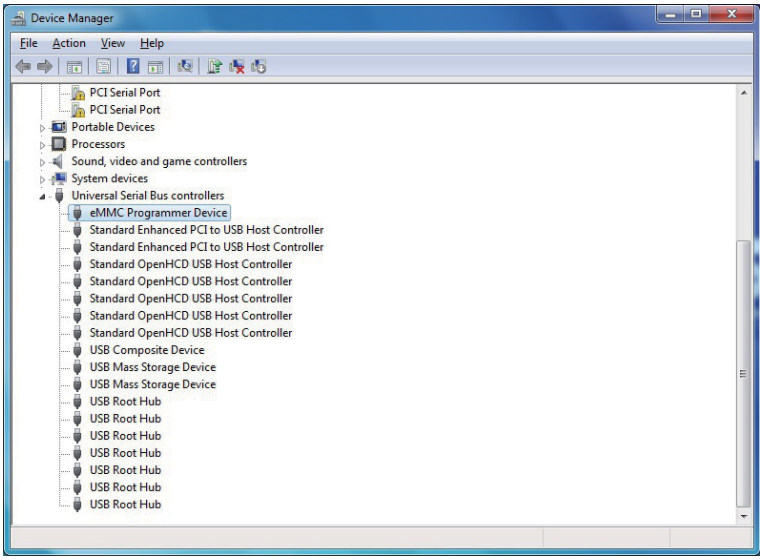


Fig 3-36 SU-6808 Installed Successfully

3-5 First Time Start up of the Software

Step 1. Start up AH-160M software, double-click the AH-160M icon on your computer or click the left button of mouse and choose “Start” → “All programs” → “Leaptronix AH-160M” → “AH-160M”.

Fig. 3-37 AH-160M desktop Icon

Fig. 3-38 AH-160M icon on the start menu

Step 2. Please enter the user name and password then click login.
(P.S. The default user name and password are Admin.)

Fig. 3-39 Login window

3-5- 1 AH-160M Platform Recognition

The reason why it shows “disconnect” and unloads while initial connecting and login software (As shown as the red circuit below.) is because the default parameter has not set up yet. So the user has to process with the hardware recognition and the storage of parameter while initial installation.

Step 1. Click “Setting” → “Options” then enter the layout setting form.

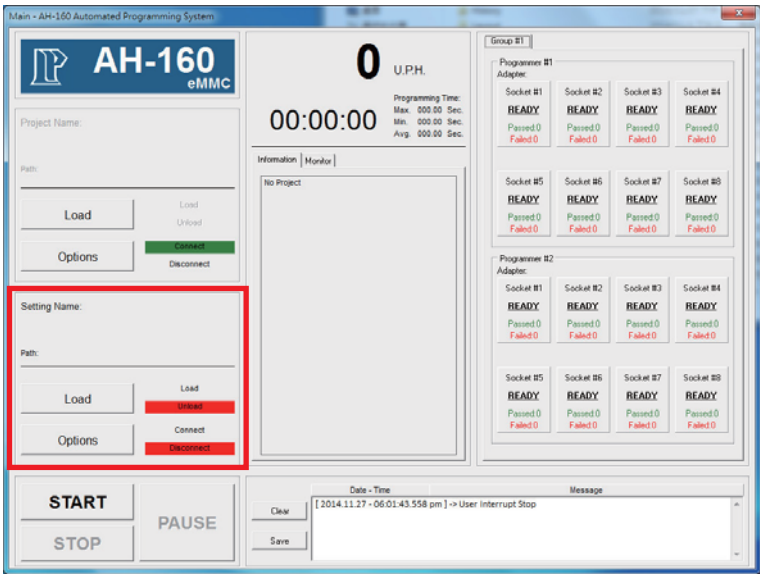


Fig. 3-40 The AH-160M main form

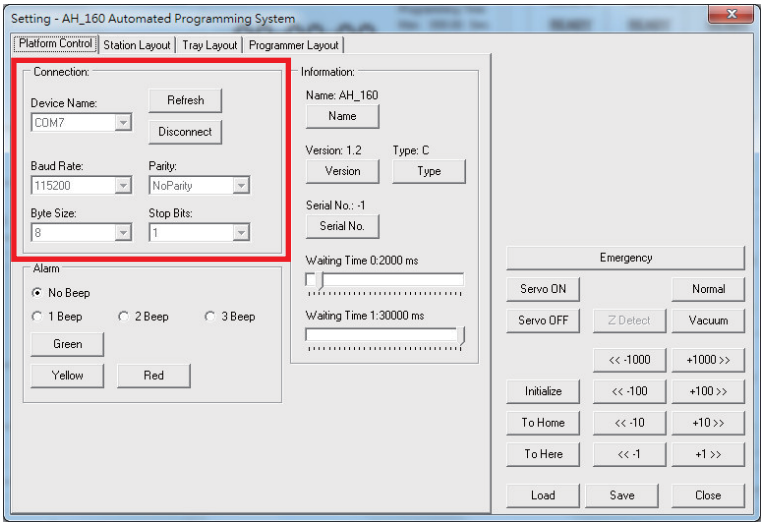


Fig. 3-41 Motor connection

Step 3. If the connection is successful. It will show the “Name”, “Version”, “Type” and “Serial No.” on the information field.

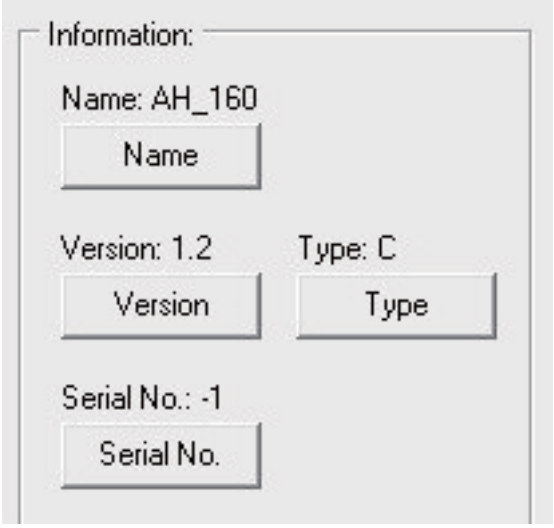


Fig. 3-42 The message of successful connection

It will disconnect automatically if the device is not AH-160M or the connection is failed. Please repeat the step 2 and step 3 till the connection success once the “connect” option is workable.

Step 4. Click “Yes” to save the file while connection is success. Turn off the window and back to the “Form Main” of AH-160M. You can also decide whether you want to save as the parameters as below Fig. shows.

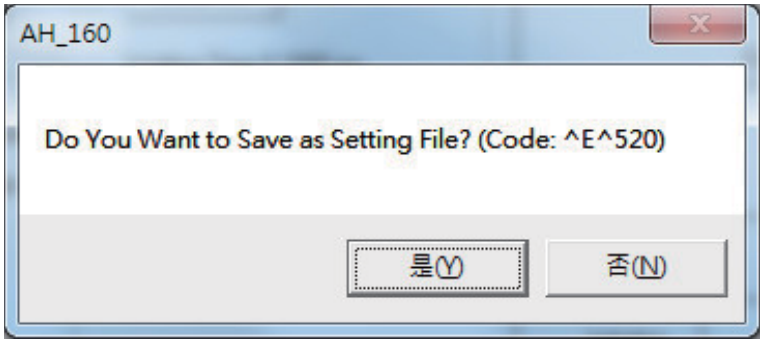


Fig. 3-43 Save as the parameters

3-5-2 SU-6808 eMMC Programmer Recognition

When the PC first time connect to AH-160M, please make sure the SU-6808 hardware recognition and parameter setting. The setting between the SU-6808 control software and hardware software must consistency.

Step 1. Turn of AH-160M

Step 2. Install the socket board. Please pay attention to the the signal on the socket board. When installation, please make the direction is correct and insert carefully.

Fig 3-44 Socket Board Installation

Step 3. Enter the main page, click “Project” → “Load”, enter SU-6808x8_A control software page.

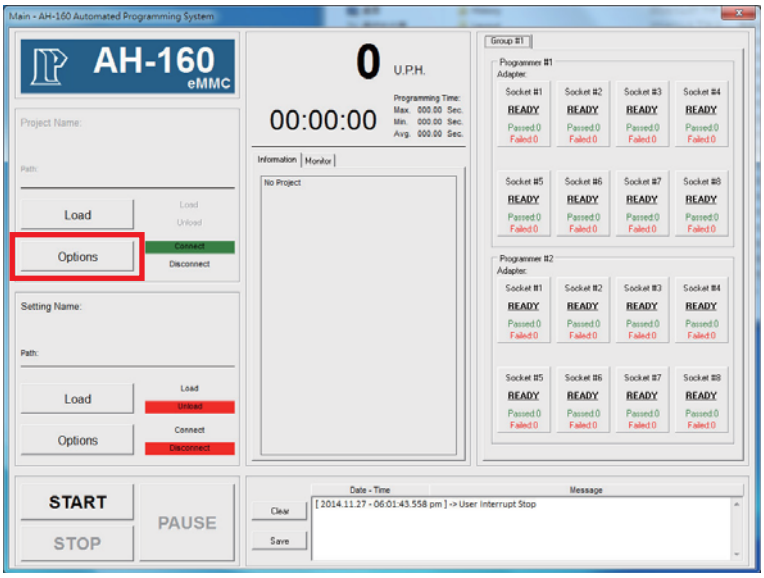


Fig 3-45 SU-6808x8_A control software

Step 4. On the SU-6808X8_A control software page right side, we start the first programmer connection. Click “Assign Machine” on the tool bar. Set the SU-6808 programmer order.

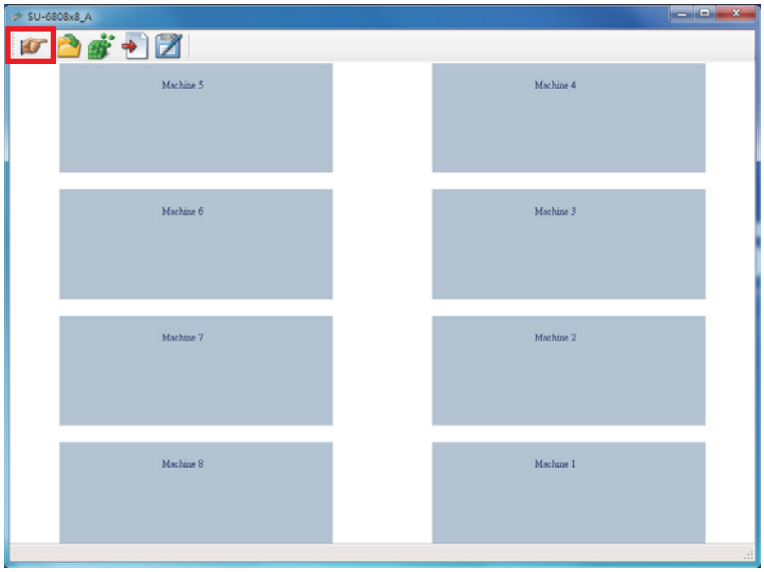


Fig 3-46 SU-6808x8_A Control Software Main Page

Step 5. The LED which on the socket board will flicker on the first programmer. Refer the Chapter 2, Fig 2-5 to Key in the first programmer no on the SU-6808_A software page. (Manufacturer default has been set)

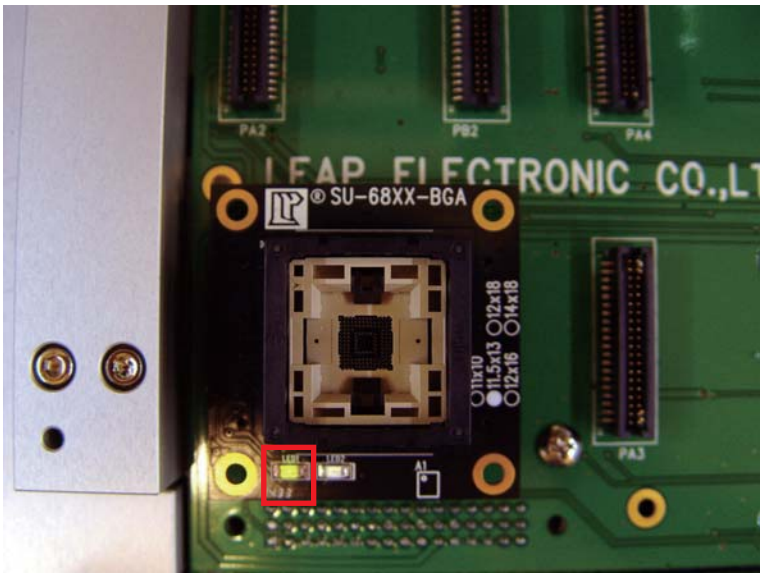


Fig 3-47 SU-6808 LED Flicker on Socket Board

Step 6. The LED which on the socket board will flicker on the second programmer. Refer the Chapter 2, Fig 2-5 to Key in the second programmer no on the SU-6808_A software page. (Manufacturer default has been set)

Chapter 4 Replacement of Components

To program different size and spec of ICs, you have to replace corresponding components for the programmers and system of AH-160M. In this chapter, we are going to explain how to install vacuum nuzzle, Press-bar and Location Notch. If you want to uninstall it, please just do the reverse procedures.

Note: Please turn off the power if you want to install or uninstall components, such as vacuum nuzzle, Press-bar, and Socket... etc.

4-1 Replacement of Vacuum Nuzzle

Step 1. Turn off the software and power of AH-160M.

Step 2. Open the cabin door and pull up the robot arm to the Import Tray nearby, as shown as the figure below.

Note: To avoid accident, you have to push the cabin door to bottom every time you open it, and make sure it would not fall by gravity.

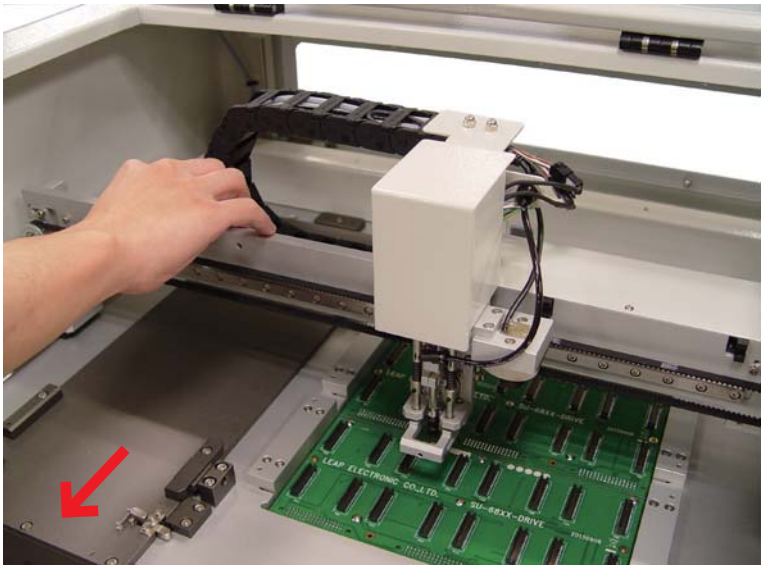


Fig. 4-1 Pull the robot arm to the far right of AH-160M

Step 3. Install the Vacuum Nozzle from bottom to top vertically of Vacuum Nozzle Rod, until both side of Nozzle Rod Spring grip and fix the Vacuum Nozzle.

Note: Inclined surface side of Vacuum Nozzle must be on same direction with Nozzle Rod Spring.

Fig. 4-2 Spring and nozzle

Step 4. Close Cabin Door.

Attention: Please be careful and not to hurt your hands while closing the cabin door

4-2 Replacement of Press-bar

Step 1. Turn off the software and power of AH-160M.

Step 2. Open the cabin door and pull up the robot arm to the Import Tray nearby, as shown as the figure below.

Note: To avoid accident, you have to push the cabin door to bottom every time you open it, and make sure it would not fall by gravity.

Step 3. Use wrench for rotating and removing the screws from the Press-bar.

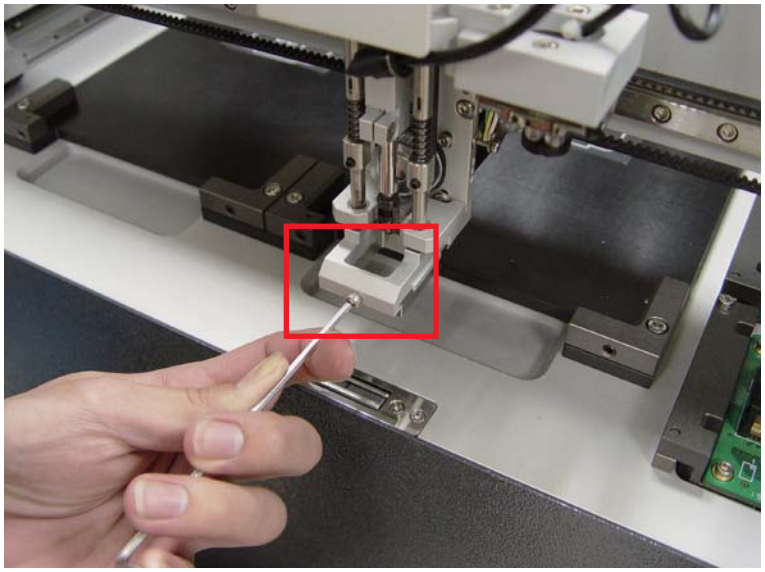


Fig. 4-3 Remove screws from the Press-bar

Step 4. Slide the Press-bar into the side of device and push it to the correct location.

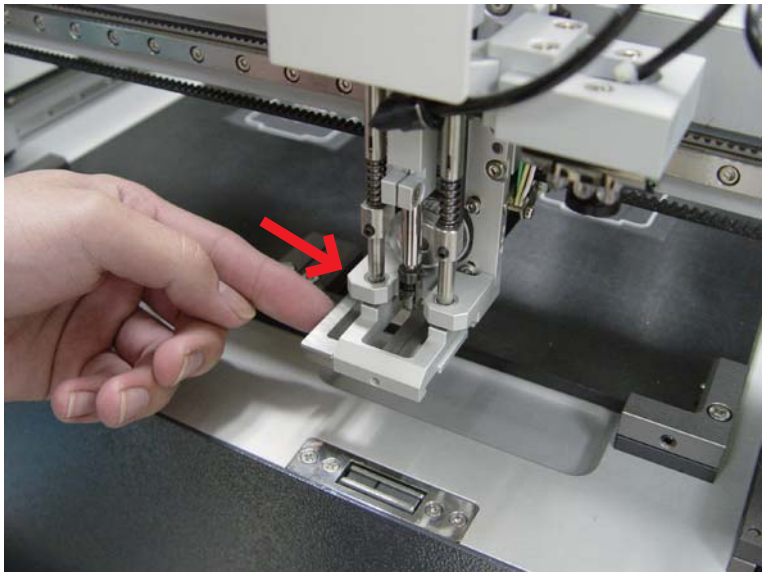


Fig. 4-4 Installation the Press-bar

Step 5. Then lock the screws and fasten the Press-bar.

Step 6. Close the cabin door.

Attention: Please be careful and not to hurt your hands while closing the cabin door.

4-3 Replacement of the Location Notch

Step 1. Turn off the software and power of AH-160M.

Step 2. Open the cabin door and pull up the robot arm to the Import Tray nearby, as shown as the figure below.

Note: To avoid accident, you have to push the cabin door to bottom every time you open it, and make sure it would not fall by gravity.

Step 3. Use wrench for rotating and removing the screws from the location notch.

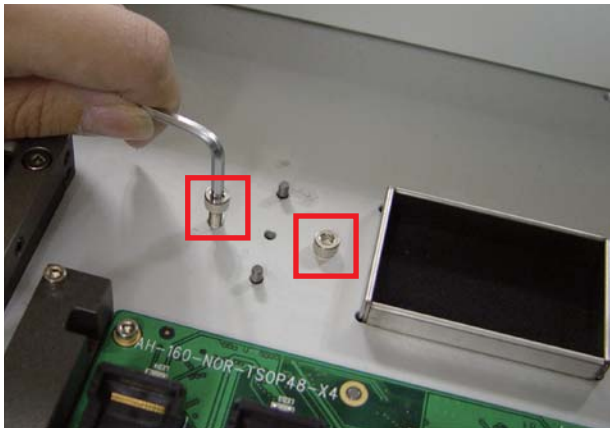


Fig. 4-5 Remove the screws from the location notch.

Step 4. Align the Location Notch Hole (at bottom of the Location Notch) with the Location Pin (on the operating plane), and then install it from bottom to top vertically.

Fig. 4-6 Make sure the specification of location notch

Note: Please make sure Location Notch, socket and the programming ICs are in same specification.

Step 5. Lock the screws. If you need to remove the location notch, please remove it in parallel.

Fig. 4-7 Installation location notch

Step 6. Close the cabin door.

Attention: Please be careful and not to hurt your hands while closing the cabin door

4-4 Replacement of Socket Board

Step 1. Turn off the software and power of AH-160M.

Step 2. Open the cabin door and pull up the robot arm to the Import Tray nearby, as shown as the figure below.

Note: To avoid accident, you have to push the cabin door to bottom every time you open it, and make sure it would not fall by gravity.

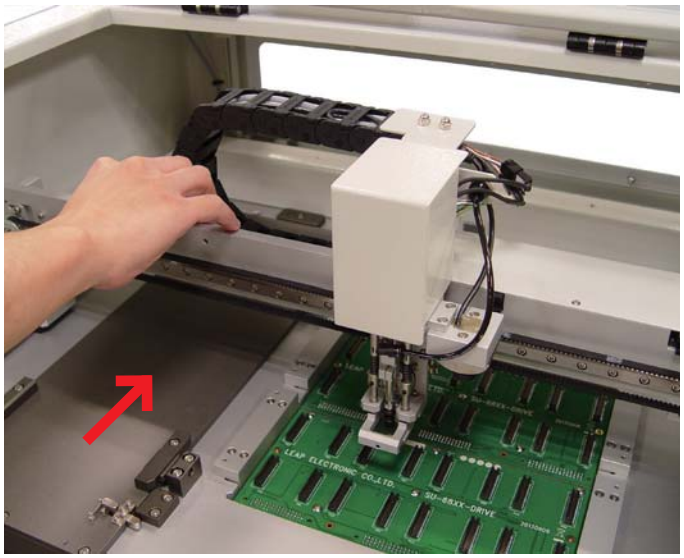


Fig. 4-8 Pull the robot arm to the far up-right

Step 3. Install Socket Board

Please insert the socket board very carefully. Must pay attention on the direction.
Please make sure the socket board and the IC package are the same.

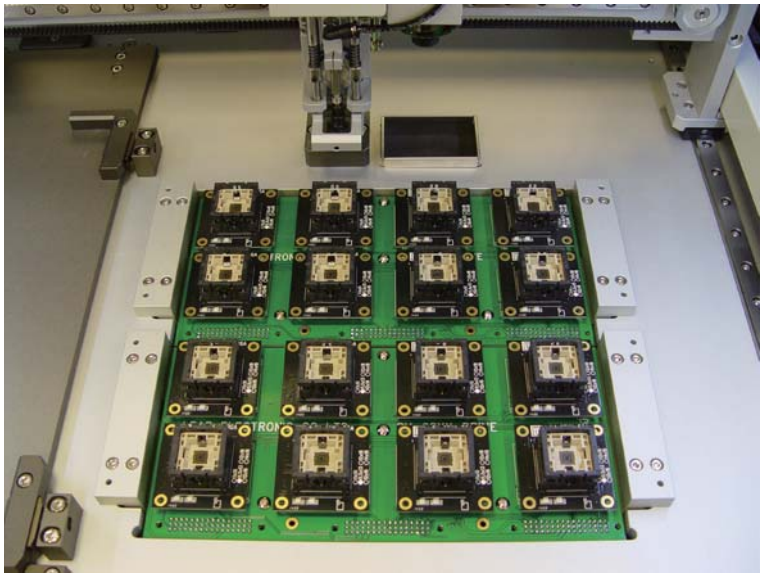


Fig 4-9 Socket Board Installation

Step 4. Close hatch door carefully.

Chapter 5 AH-160M Operating and Setting

5-1 User Login

Input the user name and password. Click “Login”. The default user name and password are “Admin”.

Fig. 5-1 Login window

5-1-1 New add/ Delete/ Amend for User

1. Click “Editor” on the Login window.

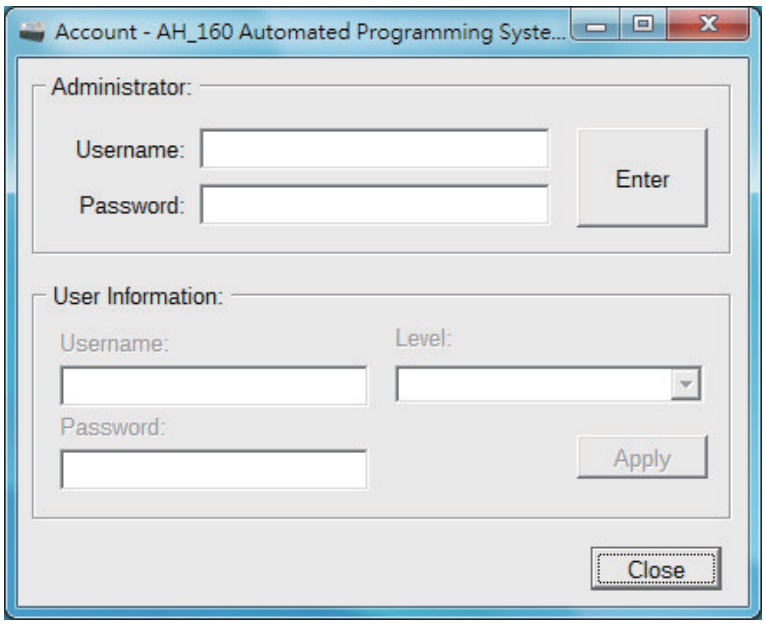


Fig 5-2 Editor Page

2. In the "Administrator", key in the top user name and password and press enter for verification. If OK, the edit page will show. The default user name and password is Leaptronix.
3. Key in the add/delete user name and password on the "User Information"
4. Key in the "Level" on the drop-down menu. If would like to delete the user, select "Disabled"

Level	Authority
Disabled	Prohibit
Engineer	1. Able to click "Options" and do adjustment for the machine. 2. Able to Click "Load" and do Project and Adjustment file. 3. Execute the order operation.
Operator	1. Able to Click "Load" and do Project and Adjustment file. 2. Execute the order operation.

1. Click "Apply" for implement.
2. Repeat Step 2 to 5 for completing all of the user's account setting.
3. Click "Close" for closing the edit page.

5-2 Introduction of Software Main Form

AH-160M software main form is the main interface for the user. You can use it for entering, operating and monitoring the work order and sockets, opening and closing sockets, displaying and recording the status messages of the device, and assessing the device performance (Unit Per Hour, U.P.H.)

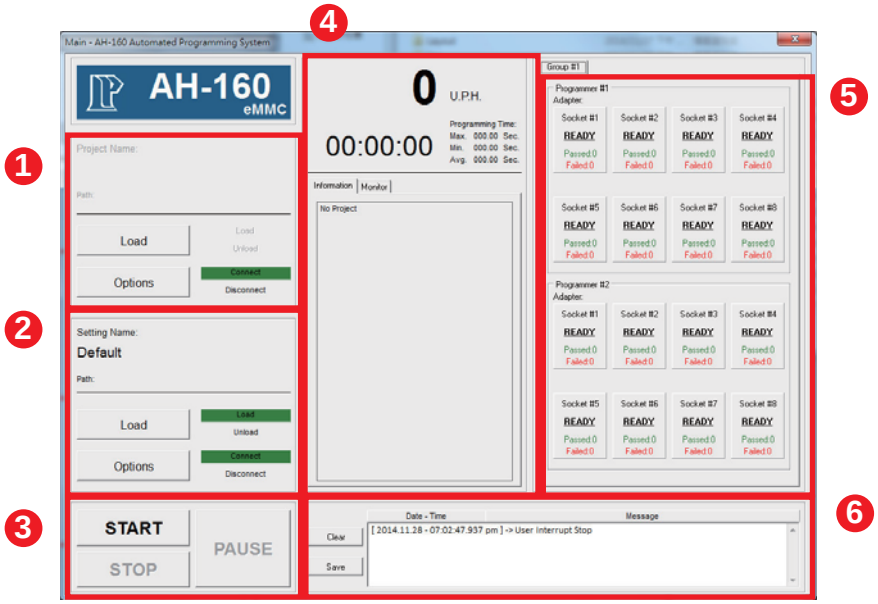


Fig. 5-3 AH-160M main form

1. Project Name: Inspect the loading project name and the path. Click “Load” to load the project dialog box. Click “Options” to open the parameters setting window of the programmers. This function will change according to the different programmers and software.
2. Setting Name: Inspect the loading setting name and the path. Click ”Load” to open the dialog box and load the parameter files . Click “Options” to open the parameters setting window of AH-160M device. This function will change according to the different programmers and software.
3. Control: Control the operating of the device and work order. It includes “START”, “Pause” and “Stop”.
4. Work order status: To show the latest information of work order. The upper part includes the U.P.H., Max., Min., And Avg. Programming time, and the lower part divides into “Information” and “Monitor”.

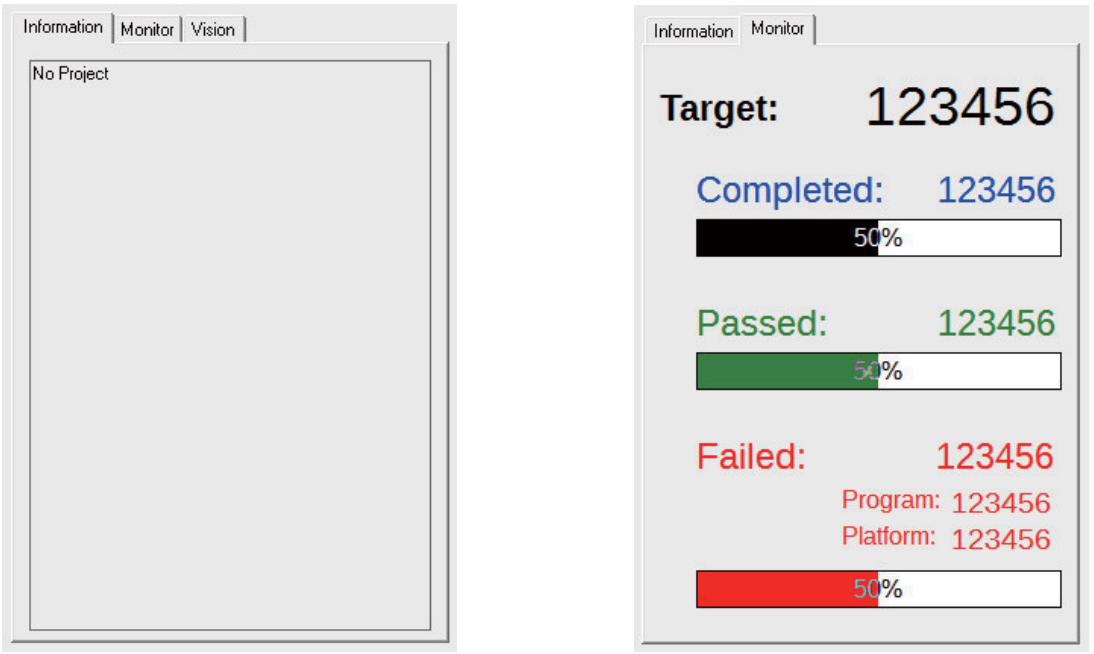
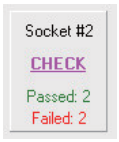
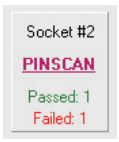
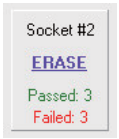


Fig. 5-4 Work order panel

- Information: To show the information of the loading project. The information will change according to the different software and projects.
- Monitor: To show the progress of the work order. It includes the Target numbers, completed numbers, pass numbers and failed numbers. Besides, it shows the information through bar chart and percentage. The failed number divides into Program failed and Platform failed. Below is the calculation method:
  Failed = (Platform Failed + Program Failed)
  Completed = (Passed + Failed)
  Completed% = (Completed / Target)%
  Passed% = (Passed / Completed)%
  Failed% = (Failed / Completed)%

- Socket Message: It shows the latest information of each programmer and socket, includes the pass numbers and failed numbers. The user can double-click the left mouse button to enable or disable the sockets. As shown as the table below:

Socket Message	Description
	The Socket is disabled. It turns off automatically or manually.
	The Socket is ready.
	The programmer is loading the project. The IC on the socket is working.
	It is checking the IC on the socket.
	The IC on the Socket is Insert Testing.
	The IC on the socket is erasing the information.
	The IC on the socket is programming.
	The IC on the socket is verifying.
	The IC on the socket is protecting.
	The loading of project is success. The programming of the IC on the socket is passed.
	The loading of the project is failed. The programming of the IC on the socket is failed.

- Message Record: It records the messages of the work order, including the status of the programmers and the device.

5-3 Layout Setting Form

Click “Option” on the parameter field on Layout Setting Form to turn on adjust and setting window. If the software and device are connected, the robot arm will initialize and back to the start position automatically.

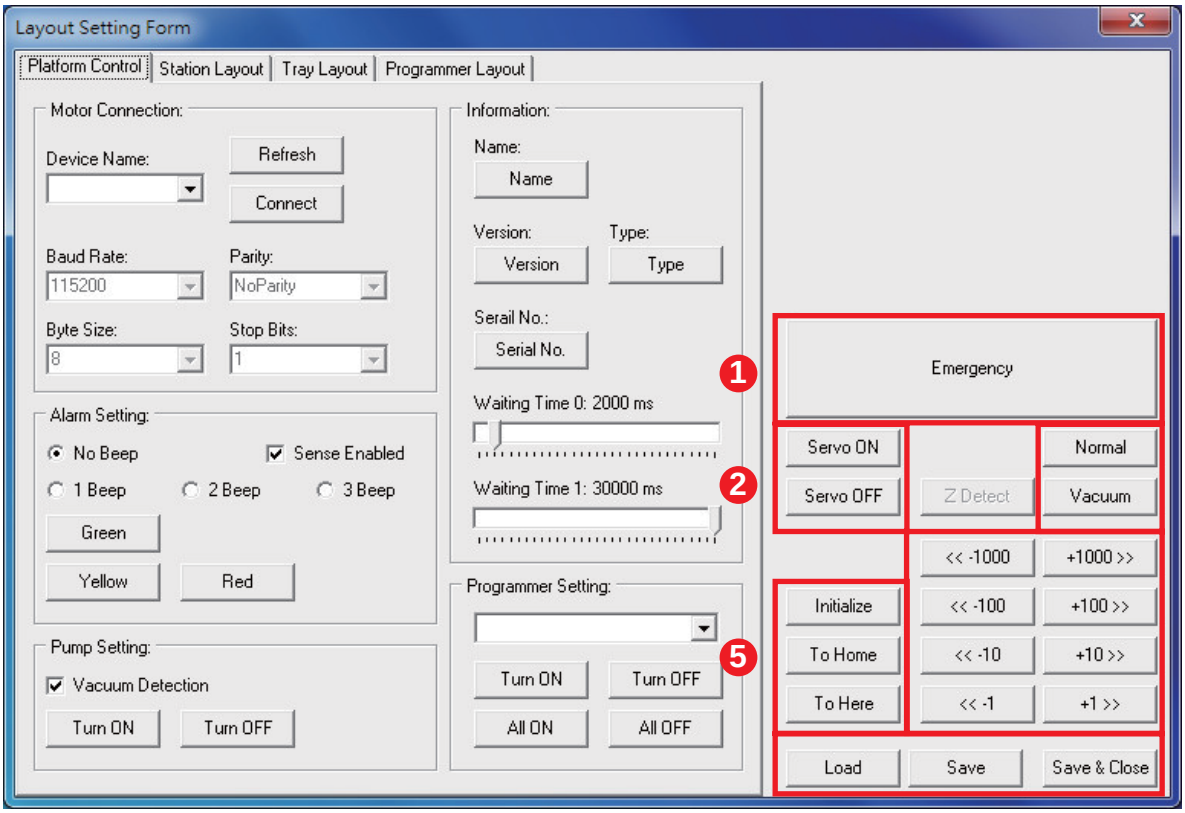


Fig. 5-5 Setting and adjustment form

It divides into 6 parts for setting and adjusting the AH-160M at the bottom right on the window.

1. Emergency: To stop the axis of robot arm in emergency.
2. Servo ON / OFF: Click the button to enable the serve on or serve off function of the motor.
3. Move the robot arm: To adjust the movement of the robot arm. Click “±1”, “±10”, “±100” and “±1000” to move the robot arm.
4. Normal / Vacuum: To select normal or vacuum mode of the socket.
5. Position Control: Move the robot arm to the fixed point. Click “Initialize” to initialize the parameters and drive the motor to the starting position. Click “To Home” to drive the motor you choose to the starting point. Click “To Here” to drive the motor to the corresponding position.
6. Load / Save: There are “Load”, “Save”, and “Save & Close” from left to the right.

5-3-1 Calibration Platform Control on Layout Setting Form

There are Motor Connection, Alarm Setting, Information, Pump Setting and Programmer Setting on platform control window.

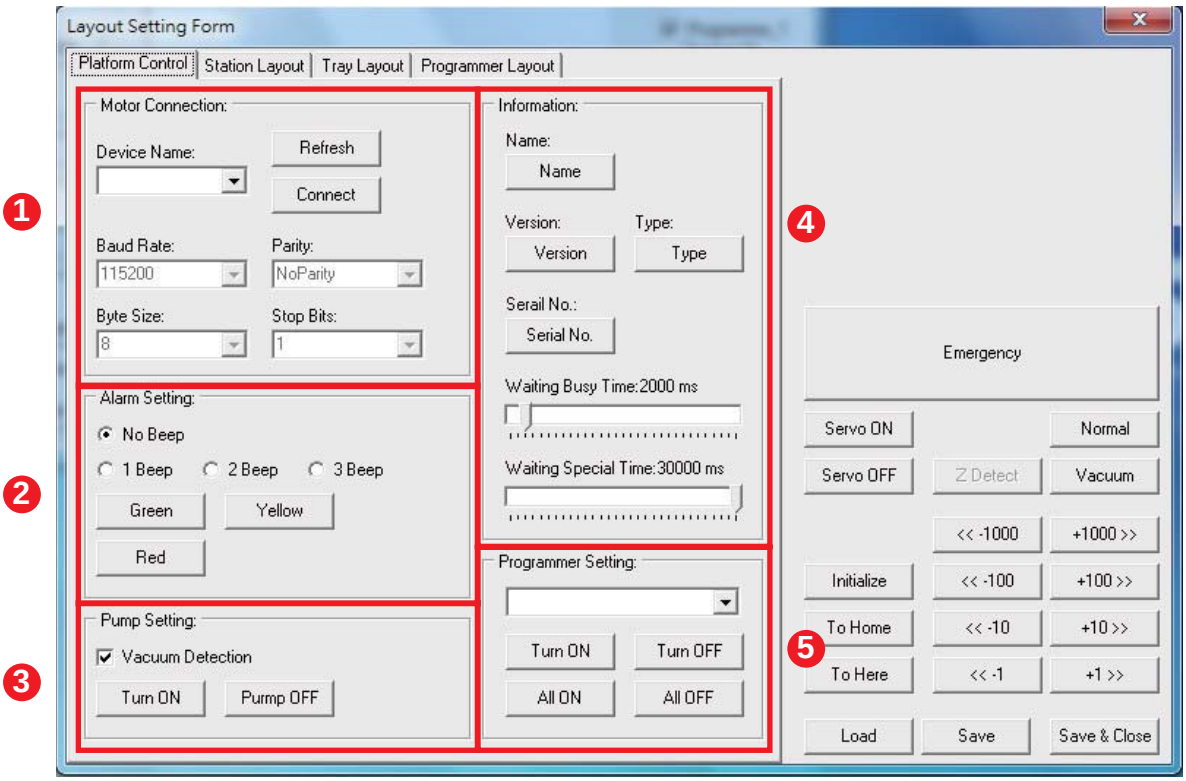


Fig. 5-6 Platform control form

1. Motor Connection: Set and choose the “Device Name” (Depend on port of user’s computer), Baud Rate (Default Value: 115,200bps), Parity (Default Value: No Parity), Byte Size (Default Value: 8 byte), and Stop Bits (Default Value: 1 bit). If there is no “Device Name”, please make sure the connection and power are okay. Click “Refresh” to refresh the Device Name. Then click “Connect”. The device will initialize if the connection is correct, and the detail will show on the “Information” field.
2. Alarm Setting: To test the light and alarm of the Tower light, including red, yellow and green lights. You can choose 1 bee to 3 bees or no beep of the alarm.
3. Information: The information of Name, Version, Type, and Serial Number.
4. Pump Setting: To turn on or turn off the vacuum pump power and the Vacuum Sensor.
5. Programmer Setting: To choose the code number of programmers and turn on or turn off. User can also open or close all the programmers at the same time.

5-3-2 Tray Layout

To set the position and parameter of Tray.

It divides into 6 parts as shown as below image.

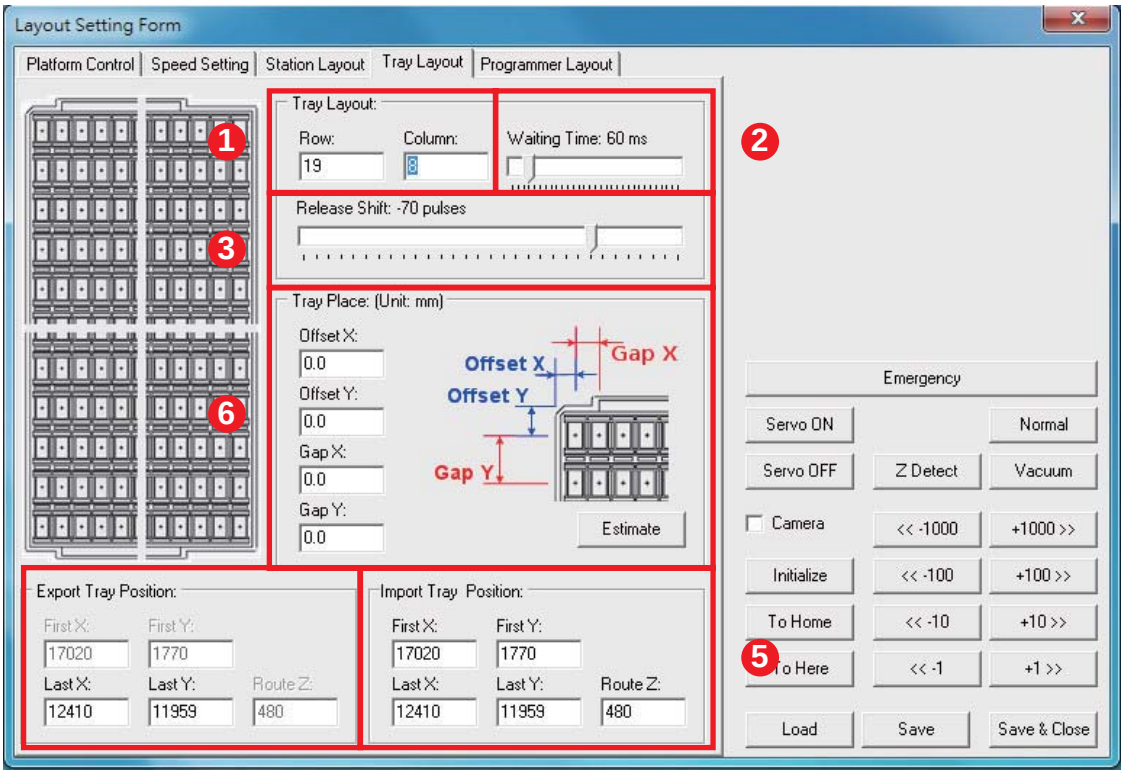


Fig. 5-7 Tray layout description

1. Tray Layout: To set arrangement of Column and Row.
2. Waiting Time: To set the waiting time of vacuum nozzle for picking and placing IC. Please do not change this parameter if the device works normally.
3. Release Shift: To set the height for robot arm to release the IC. Use Route Z to minus the pulses here. Please do not change this parameter if the device works normally.
4. Export Tray Position: To set the position of the first IC (First X and First Y) and the last IC of Export Tray. (Last X and Last Y). Also set the operating stroke of IC by Route Z. (The units are pulse wave numbers.)
5. Import Tray Position: To set the position of the first IC (First X and First Y) and the last IC of Import Tray (Last X and Last Y). Also set the operating stroke of IC by Route Z. (The units are pulse wave numbers.)
6. Tray Place: User can enter the distance between first IC (Offset X and Offset Y) and each IC (Gap X and Gap Y) based on the size of the actual Tray. Click “Estimate” to show the coordinate information of input tray and output tray. The unit is Millimeter (mm).

5-3-3 Station Layout

To set the position and each parameter of precissor and failed zone. It divided into 9 parts for description.

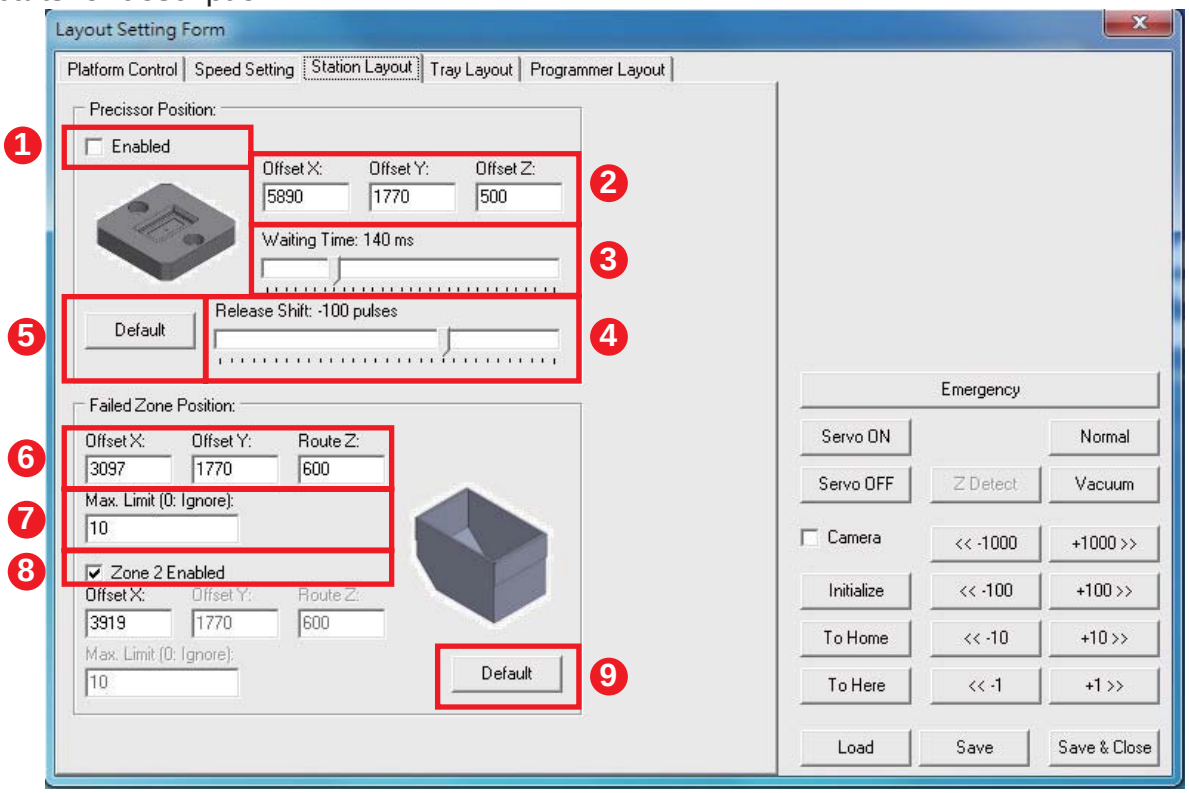


Fig. 5-8 Station layout form

1. Enabled: Choose enable to turn on the precissor position. If you don't click enable, then this function won't execute while IC moving from Input Tray to Socket.
2. Axis of precissor position: Set up Offset X, Offset Y, Offset Z, and Rout Z of precissor position. The unit is pulse.
3. Waiting Time: Set the waiting time for picking and placing IC. Please do not change this parameter if it works normally.
4. Release Shift: Set the height for release shift. Use Rout Z to minus the pulses here. Please do not change this parameter if it works normally.
5. Default: Click this and change into the default value of precissor position.
6. Failed Zone Position: Set the Offset X, Offset Y, and Route Z of Failed Zone Position. The unit is pulse.
7. Max. Limit: Set the max limit of Failed Zone Position. It will remind the user of cleaning Failed Zone once it reaches to the max limit. If you want to ignore it, please set "0" and there will not be reminder.
8. Zone 2 Enabled: To enable the Zone 2. If you click this, the failed zone position will divided into 2 parts and the capacity will increase.
9. Default: Click this and change into default value of the failed zone position.

5-3-4 Programmer Layout

To set each programmer, socket position and parameter. It divided into 9 parts for introduction. Some functions are different from the models and the quantity of programmers.

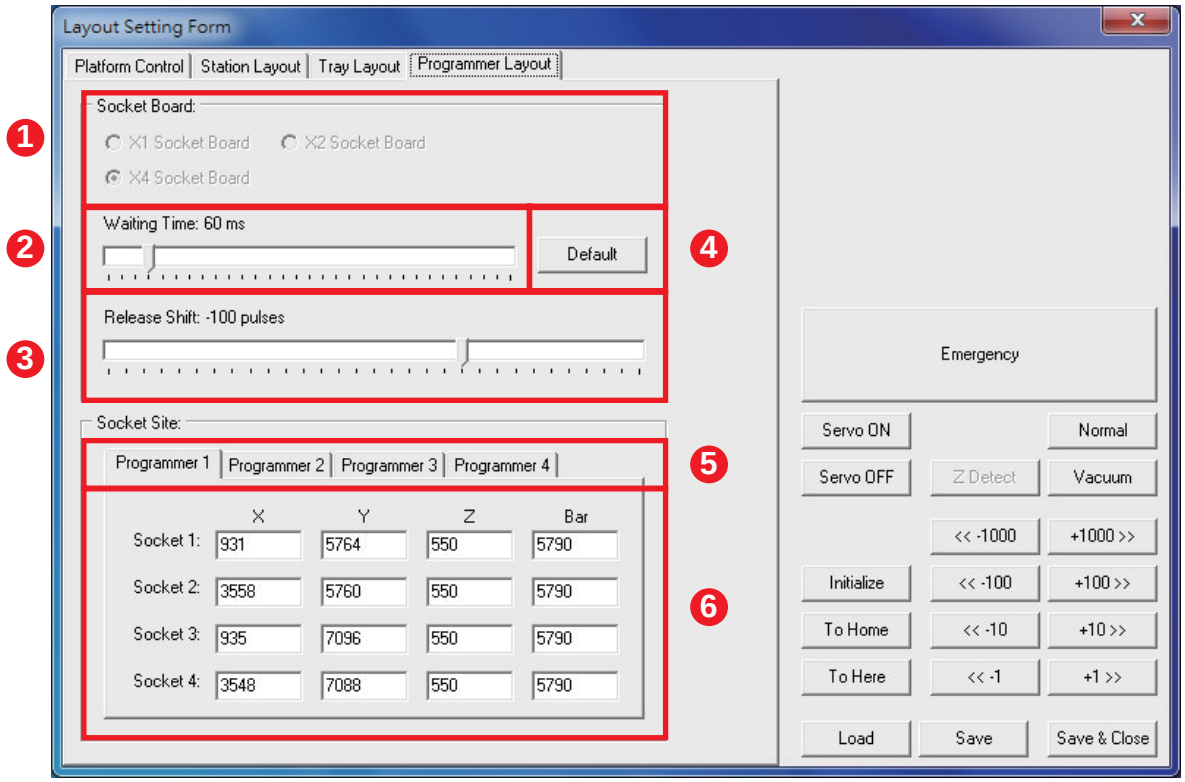


Fig. 5-9 Programmer Layout

1. Socket Board: Choose the specification of socket boards and the quantity of the installed sockets. There are three chooses, X1, X2, and X4.
2. Waiting Time: Set the waiting time for picking and placing IC. Please do not change this parameter if it works normally.
3. Release Shift: Set the height for release shift. Use Rout Z to minus the pulses here. Please do not change this parameter if it works normally.
4. Default: Click this and change into the default value of programmer layout.
5. Choose the programmers: Choose programmer 1 to 4 for setting.
6. Socket Position: Set X-axis, Y-axis, Z-axis, and Press-bar of the sockets. The unit is pulse.

5-4 X-Y Axis Sdjustment

If there are below changes such as the IC offset, the different trays. Please Offset or reset the axis so that robot arm can pick and place at the right position. In this chapter, we are going to introduce how to set and adjust the position and axis of AH-160M.

5-4-1 Manual X-Y Axis Adjustment

We take Precissor Position for example. Other setting steps of failed zone, trays and sockets are same.

Step 1. Click “Options” on the Setting field of the main software window.

Step 2. Click “Station Layout”.

Step 3. Click “Offset X” on Precissor Position. It will show dark green if you select it, and the x-axis will move to the corresponding position. (We take 5890 for example here.)

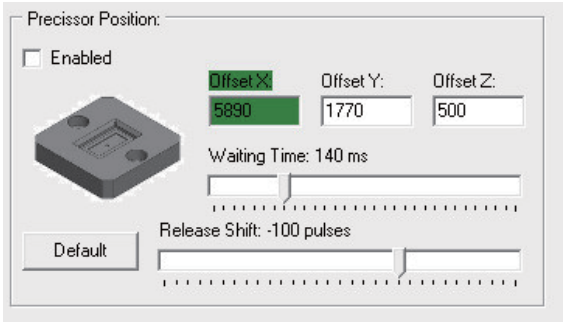


Fig. 5-10 X-Y setting 1

You can also click “Default”, and the Offset X and Offset Z will back to the default value.

Step 4. Use below selections to adjust the Offset X and Offset Y.

(As the red circuit shows.)

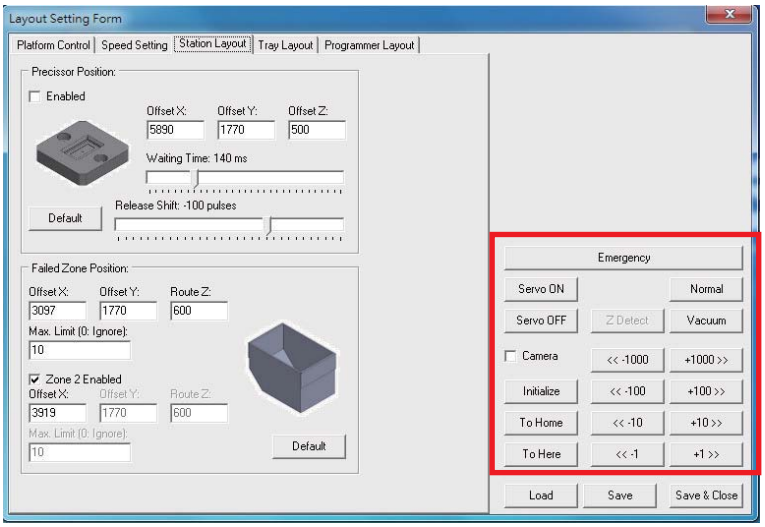


Fig. 5-11 X-Y setting 2

Step 5. Click “Offset Y” and repeat step 3 and step 4 to adjust the Offset X to Offset Y to the right position.

Step 6. After adjusting it, please click “Initialize” to move back the robot arm.

5-4-2 Automatic Estimation of X-Y Axis of Tray Position

AH-160M supports JEDEC standard, it can estimate and get the Tray position promptly. Take TSOP 48 tray for example. (As below specification.)

JEDEC		Body Size	Columns N1	Row N2	Cells N3	Corner (+X) M	Corner (-Y) M1	-Y step M2	+X Step M3
Standard	Var								
CS-008	DD	12x20mm (48L)	8	12	96	15.80	17.25	25.50	14.90

Step 1. Turn on “Layout Setting Form” and click “Option” on the setting field.

Step 2. Click “Tray Layout”.

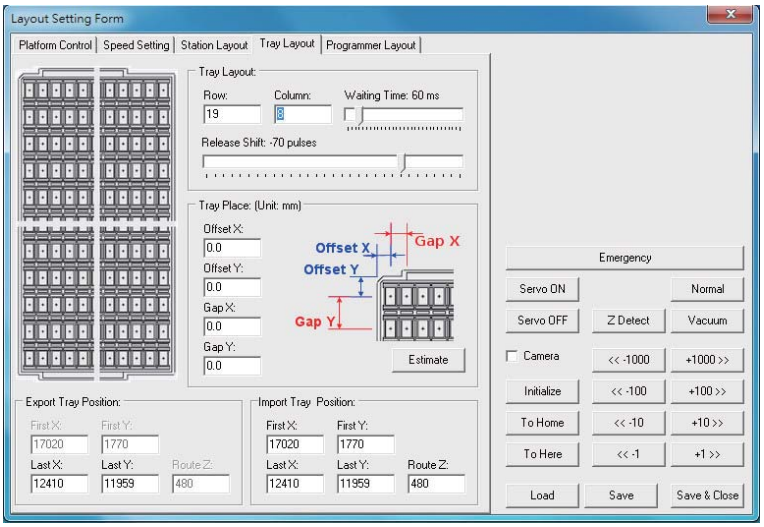


Fig. 5-12 Tray layout

Step 3. Enter 12 on “Row” and 9 on “Column”.

Step 4. Enter 15.80 on Offset X, 17.25 on Offset Y, 14.90 on Gap X and 25.50 on Gap Y. The unit is Millimeter.

Step 5. After that, click “Estimate” for estimating the input and output trays’ position of the first IC (First X and First Y) and the last IC (Last X and Last Y.)

Step 6. Follow the steps of chapter 5-4-1 and move the robot arm to the right position.

5-4-3 Automatic Adjustment of Socket Image

AH-160M is equipped with the camera for CCD function to identify and detect socket position.

Step 1. Turn on Layout Setting Form. Click “Options” on the Setting field.

Step 2. Click “Programmer Layout” on Layout Setting Form.

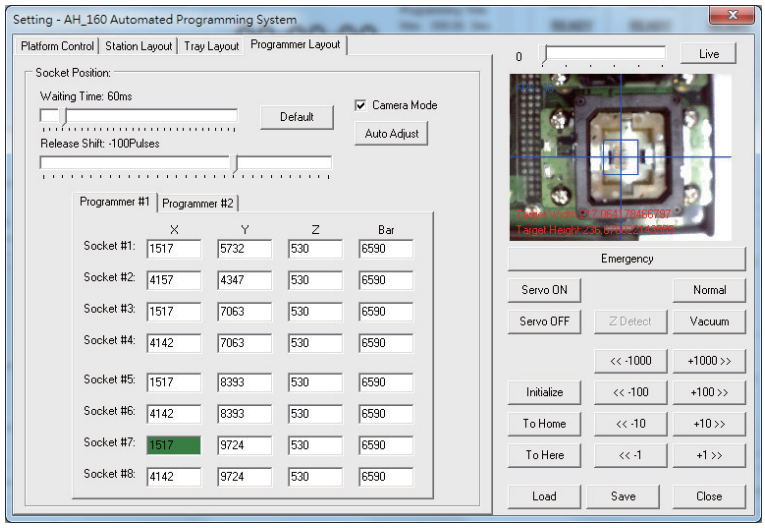


Fig. 5-13 Automatic adjustment of socket image

Step 3. Click “Camera” to turn on it.

Step 4. Click “Live” on the right top of the window to preview the camera function.

Step 5. Click “X” and “Y” on the Socket Sites, and the robot arm will move to the corresponding position.

Step 6. Click “Auto Move” and the device will start to move and process with the CCD function. It is done once the progress bar is filled with color.

Step 7. Follow steps of chapter 5-4-1 to move the robot arm to the right position.

5-5 Adjust Nozzle Stroke

If robot arm often failed to pick and place IC, Vacuum failed, or motor out of steps. Please adjust or reset the Z-axis.

5-5-1 Manual Adjustment of Nozzle Stroke

We take the nozzle of socket for example. Other setting steps of failed zone, trays and sockets are the same.

Step 1. Make sure the nozzle is installed correctly. Please choose the right nozzle for the IC.

Step 2. Turn on Layout Setting Form. Click “Options” on the Setting field.

Step 3. Click “Station Layout”.

Step 4. Click “Offset Z” on Precissor Position. It will show dark green if you select it, and the Z-axis will move to the corresponding position. (We take 500 as value here.)

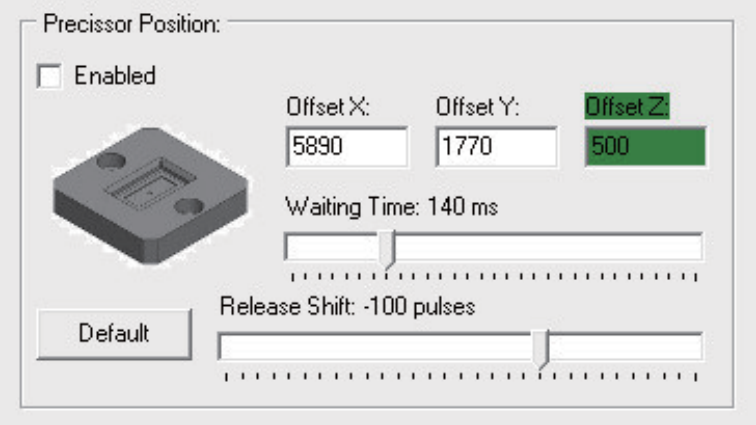
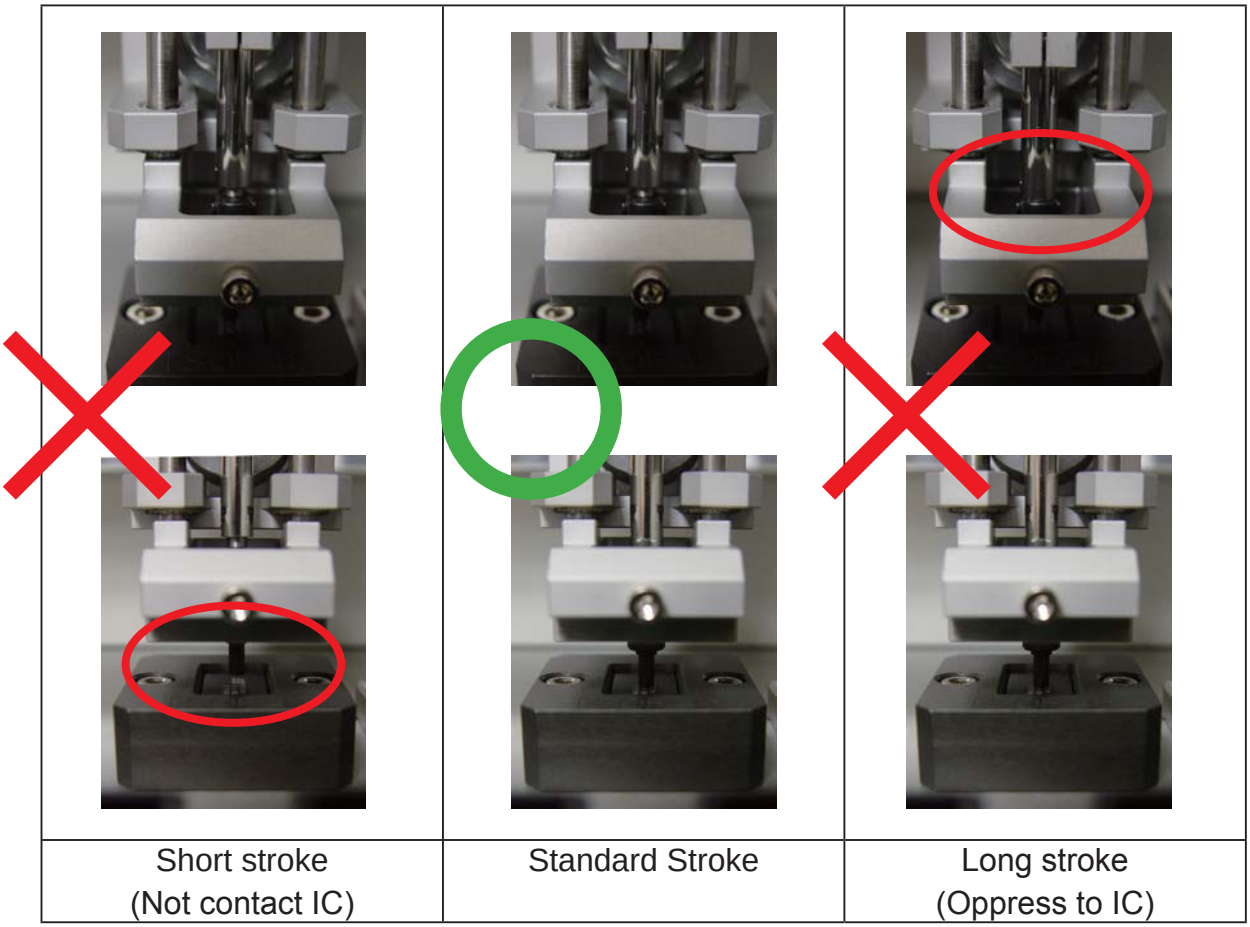


Fig. 5-14 Adjustment window

It is different to click Offset Z from Offset X and Offset Y. The socket will not move to the position automatically, which is a protection for avoiding damaging sockets by the wrong commend.

Step 5. Click “To Here” and other selections to adjust Offset Z position to the right position. Make sure it is enough and not oppress the IC.



Short stroke (Not contact IC)	Standard Stroke	Long stroke (Oppress to IC)

Fig. 5-15 Socket stroke

You can click” Vacuum” or “Normal” to turn on or turn off the vacuum function.

Before clicking “Vacuum” and “Normal”, you should make sure “Platform Control” → “Vacuum Detection” is turn off to avoid vacuum failed.

Step 6. After adjusting it, please deselect the fields and click the “Initialize” to move the robot arm to the start position.

5-5-2 Automatic Adjustment of Nozzle stroke

There is automatic adjustment of Z-axis on AH-160M. We introduce steps of adjusting socket nuzzle stroke as below. The failed zone, trays and sockets are same.

Step 1. Make sure the nozzle is installed correctly. Please choose the right socket for the IC.

Step 2. Turn on Layout Setting Form. Click “Options” on the Setting field.

Step 3. Click “Station Layout”.

Step 4. Click Offset X and Offset Y on Precissor Position and move the robot arm to the corresponding position.

Step 5. Click “Offset Z” on Precissor Position. It will show dark green if you select it.

Step 6. Click the “Detect Z” on the right bottom of the window. AH-160M will start detecting Z-axis process. It will back to the start position once the job is done.

Step 7. Click “To Here” and other selections to adjust Offset Z coordinate value and Z-axis position to the right position. Make sure there is no short stroke or long stroke of Z-axis.
You can click” Vacuum” or “Normal” to turn on or turn off the vacuum function. Before clicking “Vacuum” and “Normal”, you should make sure “Platform Control” → “Vacuum Detection” is turn off to avoid vacuum failed.

Step 8. After adjusting it, please deselect the fields and click the “Initialize” to move the robot arm to the start position.

5-6 Adjustment of Press-bar Stroke

Below example is the adjustment of the fourth Press-bar of socket on the fourth programmer. Other adjusting of Press-bar on other sockets are the same.

Step 1. Make sure the Press-bar is installed correctly. Please use the right Press-bar depends on the IC and socket.

Step 2. Turn on Layout Setting Form. Click “Options” on the Setting field.

Step 3. Click “Programmer Layout” → “Programmer 1”.

Step 4. Click “Offset X” and “Offset Y’ to move the robot arm to the corresponding position.

Step 5. Click “Bar” on Socket 7, it will show dark green if you select it. (We take 6590 as value here.)

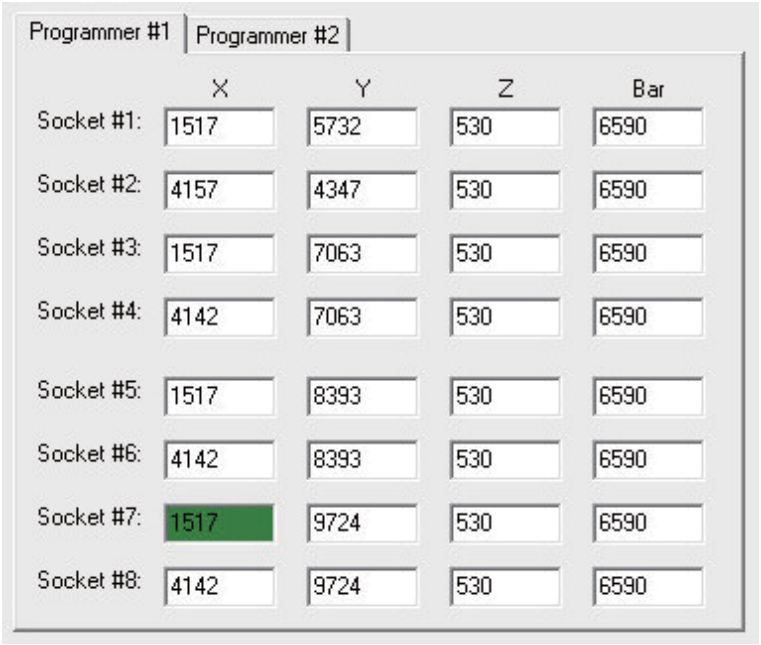
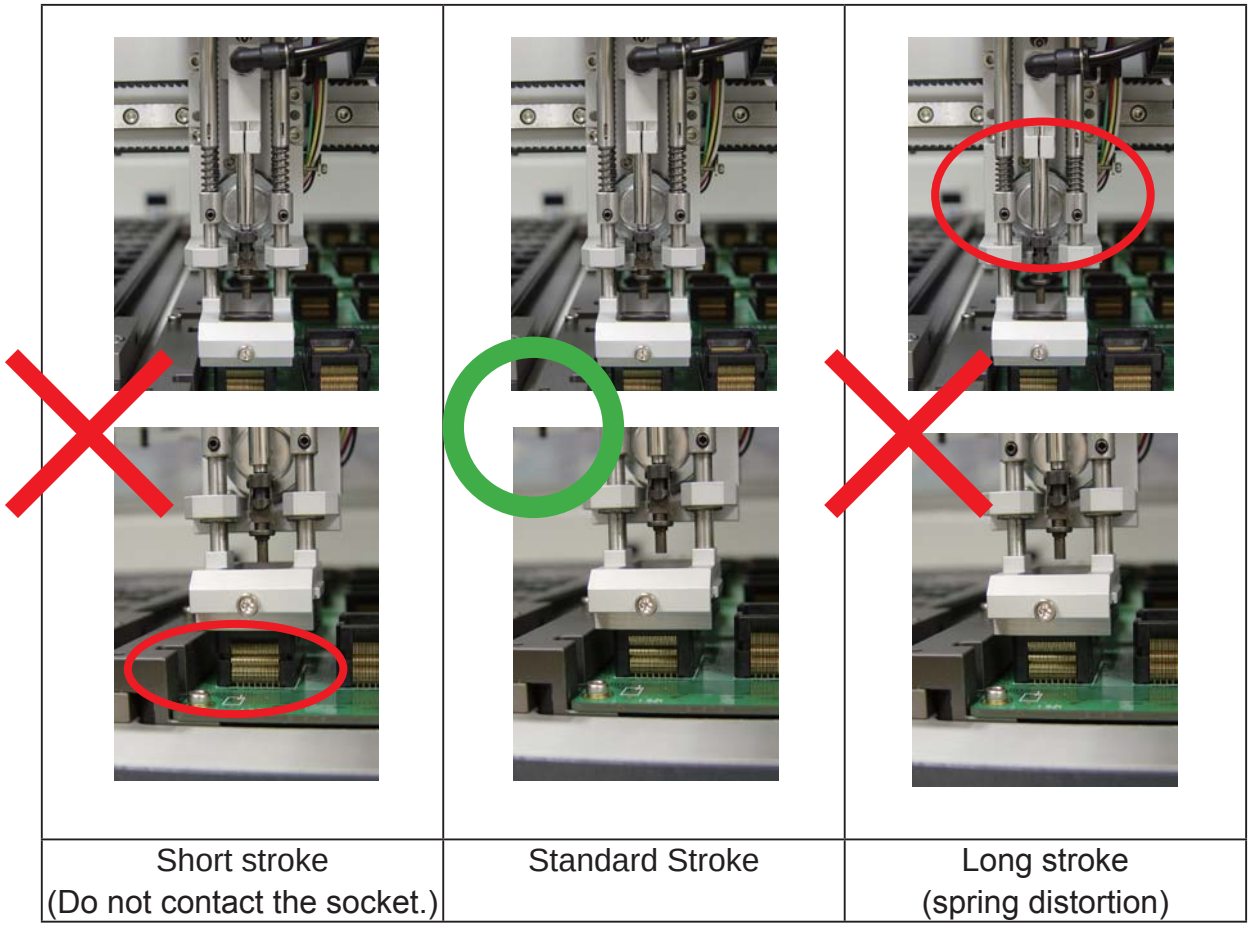


Fig. 5-16 Manual adjustment of Press-bar

Click Press-bar is different from the situation of X-axis and Y-axis. Press-bar will not move to the position automatically, which is a protection for avoiding damaging sockets by the wrong commend.

Step 6. Click the selections on the bottom right of the window to adjust Press-bar value and position to the right place. Make sure the stroke is enough and not oppress to the Socket.



Short stroke (Do not contact the socket.)	Standard Stroke	Long stroke (spring distortion)

Fig. 5-17 Press-bar stroke

Step 7. After adjusting it, please deselect the fields and click the “Initialize” to move the robot arm to the start position.

Chapter 6 SU-6808x8_A Software Operation

SU-6808x8_A able to control and monitor the 2 units of SU-6808.

There are 6 areas.

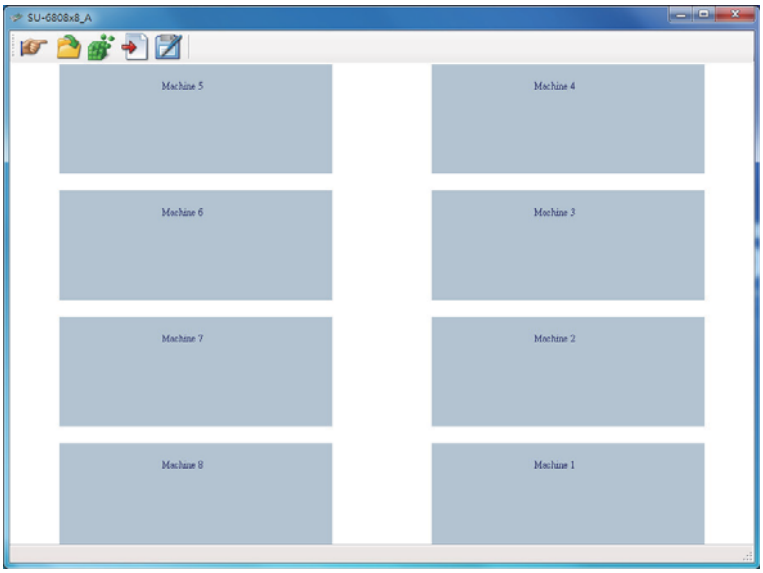


Fig 6-1 SU-6808x8_A Main page

1. Assign Machine: Assign the number for the machine. Please refer Chapter 3-5-2 for operation.
2. Load Project: Load the project file (*.prj) to the SU-6808s.
3. Format SSD: Format the SU-6808s' SSD.
4. Update: Updatea the SU-6808s' Firmwares.
5. Vendor Project:

Chapter 7 Operating Procedures of AH-160M

Step 1. Connect the power cable to power, then connect AH-160M to computer with USB cable.(Also connect the pneumatic supply.) Then turn on the power of AH-160. It will show the red light, which means AH-160M is start up but has not connected with computer.

Fig. 7-1 Connect the cables and turn on the power

Note: Please make sure the emergency button is not pressed.

Step 2. Open the upper cover of cabin door and push it to the bottom, just in case it falls and closed. Put in the Feed Tray and Out Tray with 30 degree angle and confirm the trays clung to the plane and ball plunger.

Fig. 7-2 Put in the tray

Note: To avoid accident, you have to push the cabin door to bottom every time you open it, and make sure it would not fall by gravity.

Step 3. Turn on AH-160M software. The light will turn from red into yellow, which means the connection with computer is success.

Step 4. Click the AH-160 icon on the computer desktop. Or click “Start” → “All Program” → “Leaptronix AH-160M” → “AH-160M”.

Step 5. Key in the User name and Password. Click “Login”. The default is “Admin”.

Fig 7-3 User Login in Page

Step 6. Load the Project. Click “Project” → “Load”. Enter the SU-6808 monitor page. Make sure all of the highlights are all green on the left side. If in red, refer the Chapter 3-5-1.

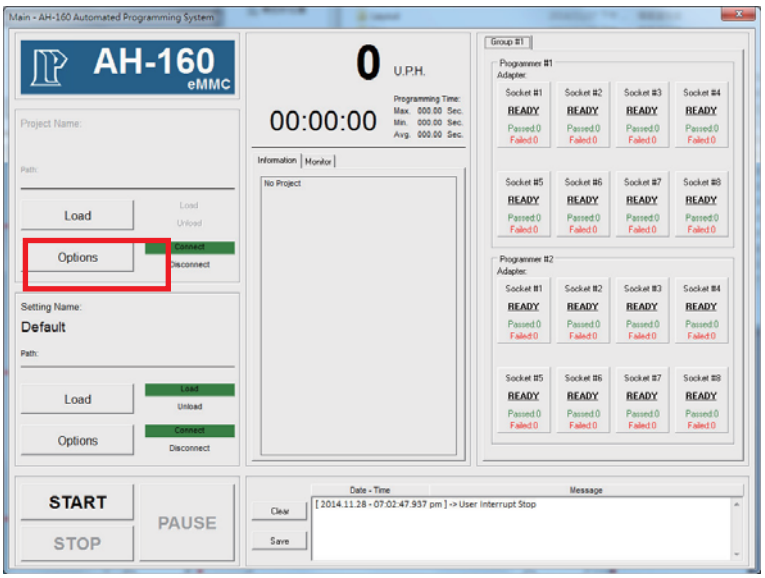


Fig 7-4 SU-6808 Monitor Software Show the Load Project

Step 7. Click “Load Project”, and select the programmed file (*.Prj). Make sure the SU-6808 connect to the software completely. There should be green on the box circle. Refer the Chapter 3-5-2.

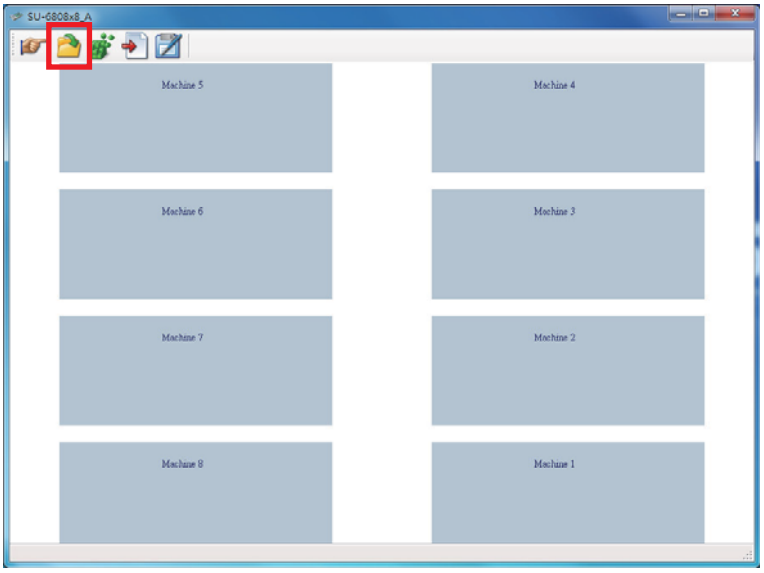


Fig 7-5 Load File on SU-6808 Monitor Software

Step 8. Finish file loading. Minimize the SU-6808 monitor software and back to the main page.

Step 9. Click “START” to start the work order. It will show the settings window of work order. The user can set the “Tray Out Start No.”, “Tray In Start No.” and “Quantity”. After setting it, please click OK to start the work order.

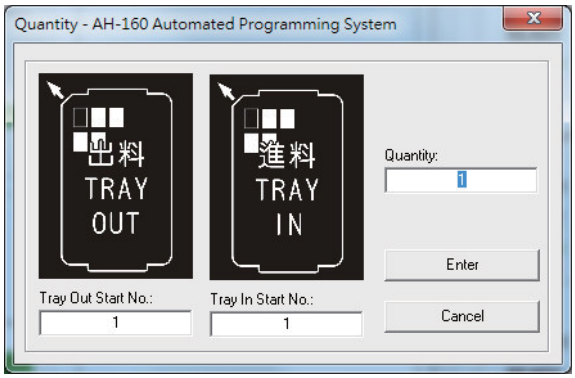


Fig. 7-6 The work order settings window

Note: Before it starts, please make sure the setting parameters are same. The parameters such as rows and columns of input trays and output trays, sockets amounts and the setting position of the robot arm.

Step 10. In the process of the work order, it could show the warning message with the red light and 3 bees. The user has to remove the IC that caused warning message (Take it out or put it on the failed zone.) Then reply the warning message.

Note: If you click “Yes”, AH-160M will process with the work order. It will stop the work order if you click “No”. AH-160M will programming and export the rest Ics on the sockets and finish the work order.

Step 11. The yellow light will flash and buzzer will bee twice once the work order is finished.

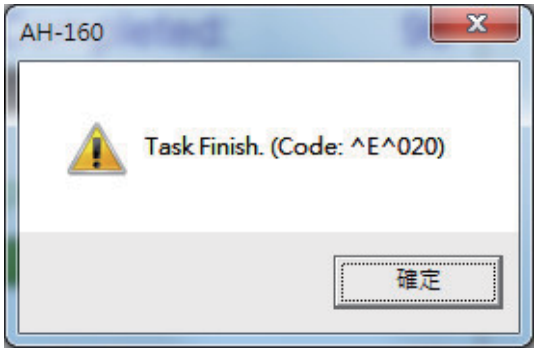


Fig. 7-7 The work order is finished

Chapter 8 Simple Troubleshooting

8-1 Power

- Turn on the power but the red light doesn’t flash.
- Solution: Check the fuse is not burn out.

8-2 Motor

- The Vacuum Nozzle Bar repeats initialization.

  Turn off the power and software, and pull the bar to bottom and restart the software.
- The Motor Control doesn’t response:

  Confirm Export and Import Trays are placed.

8-3 Pressure

- Vacuum formation failed:

  Make sure there is IC on the suck position.

  Make sure the pump is open.

  Make sure the height of Z-axis is correct.

8-4 Programmers

- The fail rate of programming is too high.

  Make sure the socket is installed correctly.

  Make sure the Press-bar stroke can open the socket fully.

Chapter 9 Messages and Troubleshooting

9-1 Description of Messages and Troubleshooting

In this chapter, we will explain the meanings of the message. There are two types of messages and 5 corresponding actions as below.

No	Type	Action	Note
1	Normal message	Display the window only.	
2	Wrong message	Display the window and stop the device.	

The Tower light and Buzzer will do the corresponding reactions as the below messages occurred.

No	Type	Status of Tower light and Buzzer	Note
1	The device is working	Green light is on	
2	The device is paused or standby	Yellow light is on	
3	The device is not connected to the software	Red light is on	
4	Device error	Red light flashes 3 times The Buzzer buzzes three times and stays on red light.	
5	The work order is completed	Yellow light flashes twice The Buzzer buzzes twice and stays on yellow light.	

9-2 Wrong Message List

The device will stop all actions once the wrong messages occur. It will show the wrong messages on the window for user to solve it. The user has to trouble shooting and click the corresponding buttons to move the device again. Below are all the codes for warning messages

Code	Content	Note
:E:X00	X-axis: Fail to initialize	
:E:Y00	Y-axis: Fail to initialize	
:E:Z00	Z-axis: Fail to initialize	
:E:B00	Press-bar: Fail to initialize	
:E:X01	X-axis: Start the positive limit warning	
:E:Y01	Y-axis: Start the positive limit warning	
:E:Z01	Z-axis: Start the positive limit warning	
:E:B01	Press-bar: Start the positive limit warning	
:E:X02	X-axis: Start the negative limit warning	
:E:Y02	Y-axis: Start the negative limit warning	
:E:Z02	Z-axis: Start the negative limit warning	
:E:B02	Press-bar: Start the negative limit warning	
:E:X03	X-axis: The motor is not exciting	
:E:Y03	Y-axis: The motor is not exciting	
:E:Z03	Z-axis: The motor is not exciting	
:E:B03	Press-bar: The motor is not exciting	
:E:X04	X axis: Motor out of step	
:E:Y04	Y axis: Motor out of step	
:E:Z04	Z axis: Motor out of step	
:E:B04	Press-bar: Motor out of step	
:E:X05	X axis: The positive and negative sensors error	
:E:Y05	Y axis: The positive and negative sensors error	
:E:Z05	Z axis: The positive and negative sensors error	
:E:B05	Press-bar: The positive and negative sensors error	
!E!000	Programmer 0: Fail to turn on the power	
!E!100	Programmer 1: Fail to turn on the power	
!E!200	Programmer 2: Fail to turn on the power	
!E!300	Programmer 3: Fail to turn on the power	
!E!001	Programmer 0: Fail to turn off the power	
!E!101	Programmer 1: Fail to turn off the power	
!E!201	Programmer 2: Fail to turn off the power	
!E!301	Programmer 3: Fail to turn off the power	
!E!002	Programmer 0: Fail to back to the USB mode	
!E!102	Programmer 1: Fail to back to the USB mode	
!E!202	Programmer 2: Fail to back to the USB mode	
!E!302	Programmer 3: Fail to back to the USB mode	
!E!003	Programmer 0: Fail to execute the programming commend	
!E!103	Programmer 1: Fail to execute the programming commend Programmer	
!E!203	2: Fail to execute the programming commend	
!E!303	Programmer 3: Fail to execute the programming commend	

Code	Content	Note
!E!004	Programmer 0: Fail to execute Insert Test	
!E!104	Programmer 1: Fail to execute Insert Test	
!E!204	Programmer 2: Fail to execute Insert Test	
!E!304	Programmer 3: Fail to execute Insert Test	
@E@000	Fail to form the vacuum nozzle	
@E@002	Fail to release the vacuum nozzle	
@E@100	The cabin door is open	
@E@200	The emergency switch is execute	
@E@400	The input tray is not installed	
@E@500	The output tray is not installed	
@E@900	The input and output tray are not installed	
+E+000	Platform Controller: Fail to set System Tick	
+E+001	Platform Controller: Lock in a wrong status	
+E+002	Platform Controller: The length of packet transmission is wrong	
+E+003	Platform Controller: The form of packet transmission is wrong.	
+E+004	Platform Controller: Write in error	
+E+005	Platform Controller: Update error	
+E+100	Platform Controller: Flash Memory initialize error	
+E+101	Platform Controller: Flash Memory unlock error	
+E+102	Platform Controller: Flash Memory write in error	
+E+103	Platform Controller: Flash Memory lock error	
+E+200	Platform Controller: EEPROM initialize error	
+E+201	Platform Controller: EEPROM write in fail	
+E+202	Platform Controller: EEPROM write in error	
+E+203	Platform Controller: EEPROM read error	
^E^002	Can not connect to the platform controller	
^E^003	Can not connect to the programming controller	
^E^004	Programmer check fail	
^E^005	Platform check fail	
^E^020	The work order is finished	
^E^100	The platform is disconnect	
^E^200	Check and confirm the input tray	
^E^201	Check and confirm the output tray	
^E^202	Check and clean the failed zone	
^E^300	The error of user name and password	
^E^400	Check the quantity of the work order	

Chapter A SU-6808 eMMC Programmer/Duplicator Software Manual

A-1 Introduction

This software allows connection of SU-6808 to PC. It can read / write / set the eMMC latch register inside, and read/ write eMMC Boot area and user data area.

A-2 Usage Consideration

Please use the software function carefully. Most important, the user must have professional knowledge of eMMC IC. For example, when setting and partitioning, the user has to know what influences will be caused by changing the parameters. Some setting or partitioning of eMMC can only execute once and can not resume again.
When using SU-6808 or the software to produce Project files or Master tapes, you must program few master tapes first, then weld and assemble it to the product for the full test. You have to make sure the project file and the production of master tape are all correct. Or it may cause many losses when gang producing.

A-3 Install and link to SU-6808

Please install this software and driver first, then connect PC and SU-6808 with USB cable. Turn on the SU-6808, and click [↑UP] or 4.Link to PC'on the main menu to execute this software.

A-4 Software Function

The operation interface is as below, you can use pull down menu or click ICON to execute the function. It will show "Device OK" on the left bottom if it is connected. If it's not, it will show "Device disconnected".

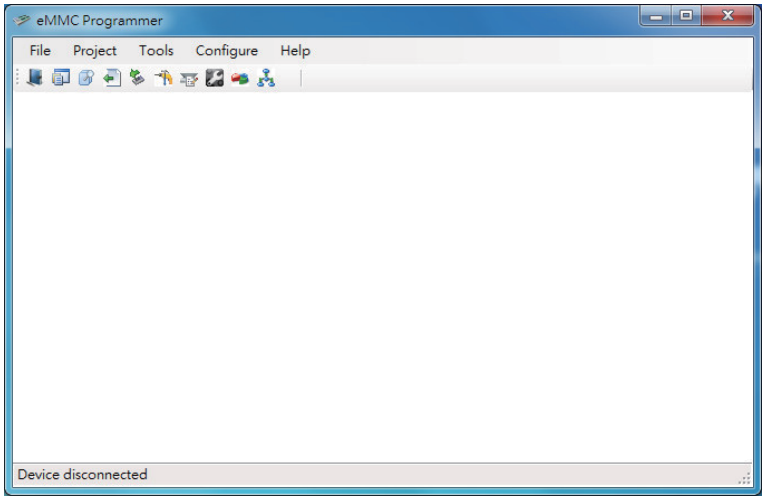


Fig A-1 MMC Programmer main page

1. File System: Provide a simple interface for managing eMMC Programmer File System, which can process the eMMC IC on the Master Socket and the FAT32 file of the SDD. It can not be processed and checked if it is not FAT32 file.

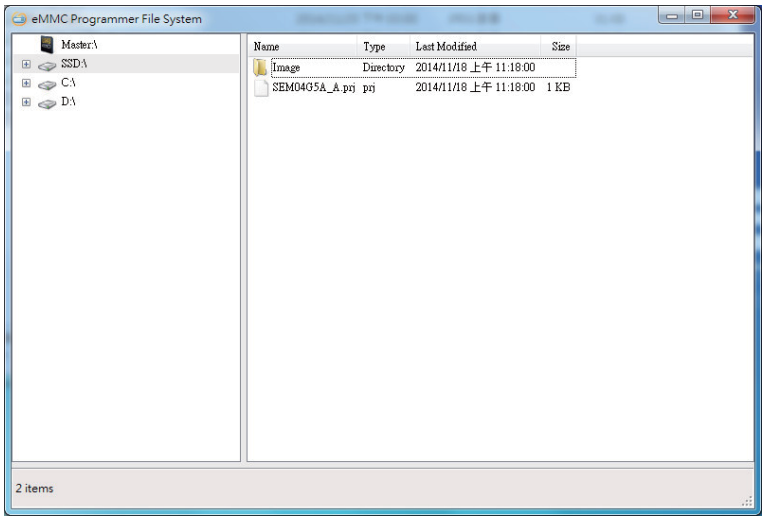


Fig A-2 File System Manager Page

2. Project Utility: Project Upload/Download/Comparison function, you could upload the project files on SU-6808 SSD to PC or download the project files from PC to SU-6808 SDD or compare both project files.

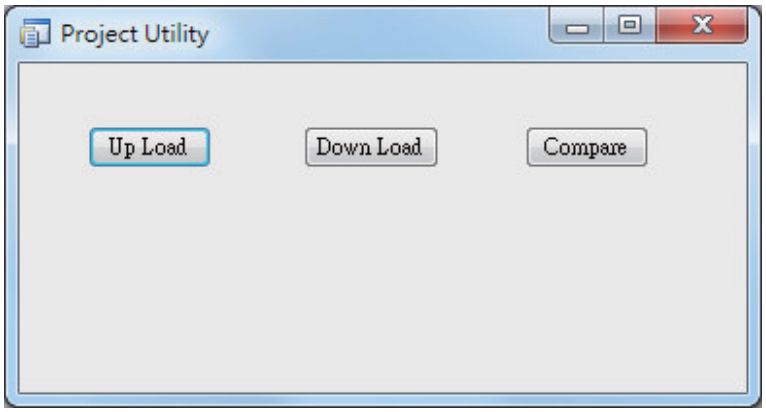


Fig A-3 Project Utility

3. Open Project: To open and set SU-6808 SSD project file on Open File window. Choose project and click "Open file".

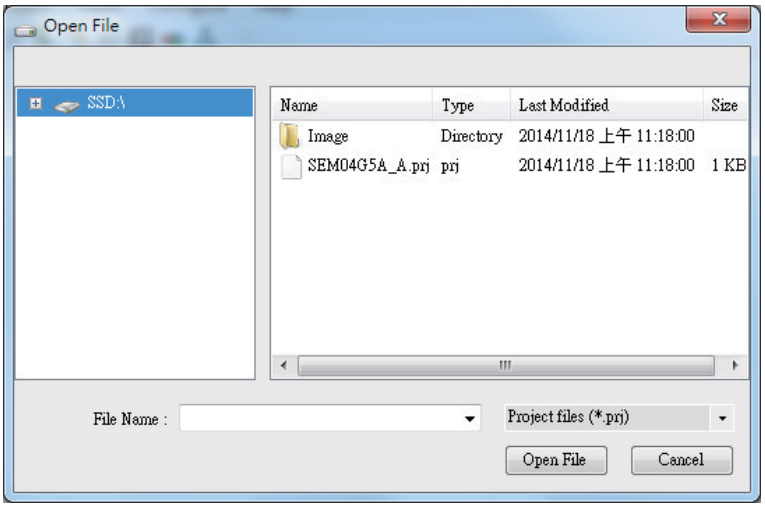


Fig A-4 Open File Manager

Project set up is as below image:

- User Area (Including image file)
- Boot Partition: Choose Boot Area and write in “Boot Partition Config” setting to the eMMC components ;
- Process: Erase All: Program; Verify; Check CID ; eMMC frequency, Bus width, and TCO parameters setting ;
- General Purpose Partition ;
- Project save file name:

Click OK while finishing setting and save it to Project file. Click cancel to turn off the window.

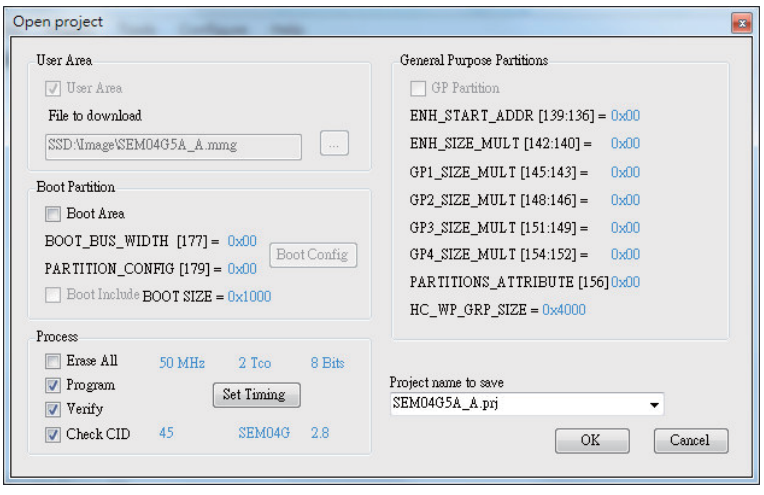


Fig A-5 Open Project Manager

4. Update: Update SU-6808 System firmware.

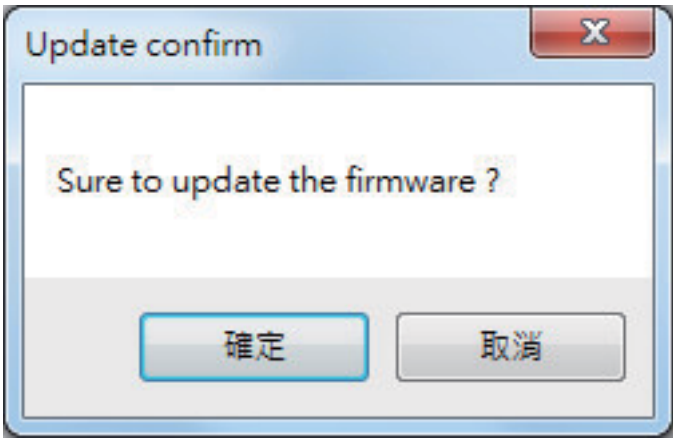


Fig A-6 Update

5. Master Timing: To set the reading and writing of Master Socket. You can click 'AUTO SELECT TIMING' and SU-6808 will search the best parameters automatically. It will also login this parameter for optimizing the control of reading the same master next time. You can also turn off Auto function and adjust it manually.

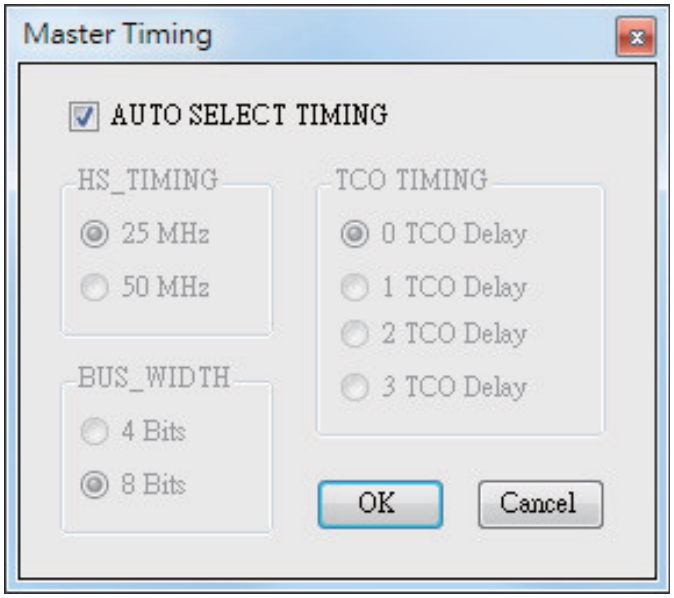


Fig A-7 Master Timing

6. Master Ext_CSD: To check and set the parameters of CID, CSD, EXT_CSD on the Master Socket.

Note: Please check the eMMC specification , revise and verify it carefully when using this function.

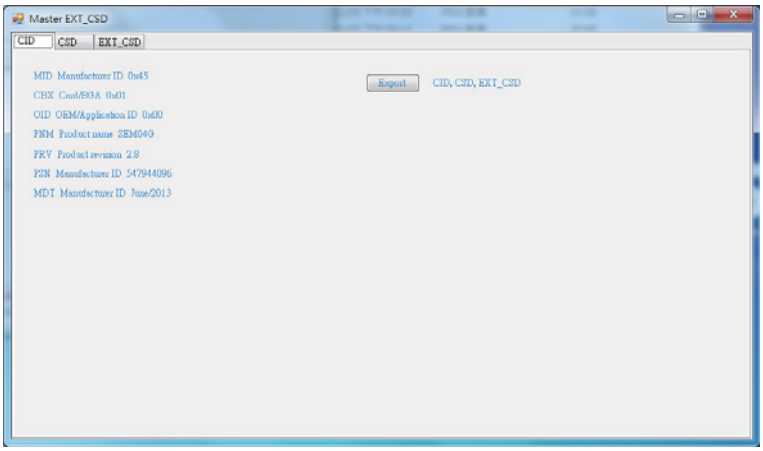


Fig A-8 Master CID

Fig A-9 Master CSD

EXT_CSD Window: If you want to change the content of the latch register, please choose the latch register from the left field and enter the right field.

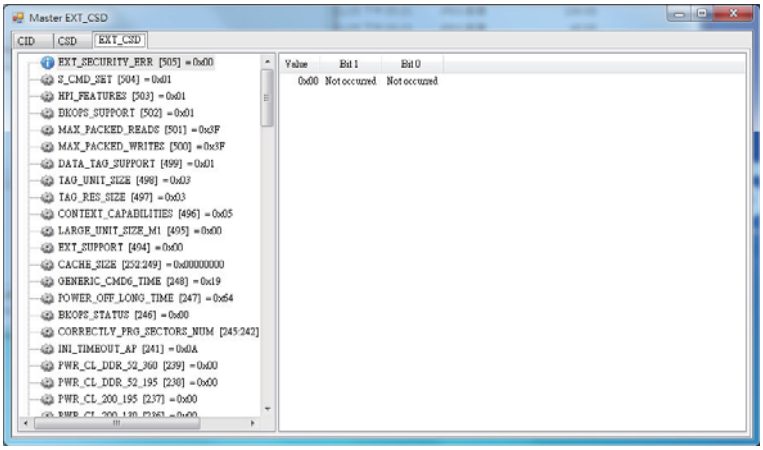


Fig A-10 Master EXT_CSD

7. Boot Partition Config: To check and set Boot Partition of master tape on the Master Socket.

- EXT_CSD BOOT BUS CONDITION [177] is the setting of latch register, which is on the left side window.
- EXT_CSD Partition Config [179] is the setting of latch register, which is on the middle of the window. After finishing the setting, click “Write” and write it to the Master tape on the Master Socket. The Writer key of ‘Boot AREA 1’ and ‘Boot AREA 2’ Window is for writing BIN file of PC to Boot Area of the Master tape. “Save” press is for reading the Boot Area of Master tape and save it as BIN file.

Note: Please check the eMMC specification, revise and verify it carefully while operating this function.

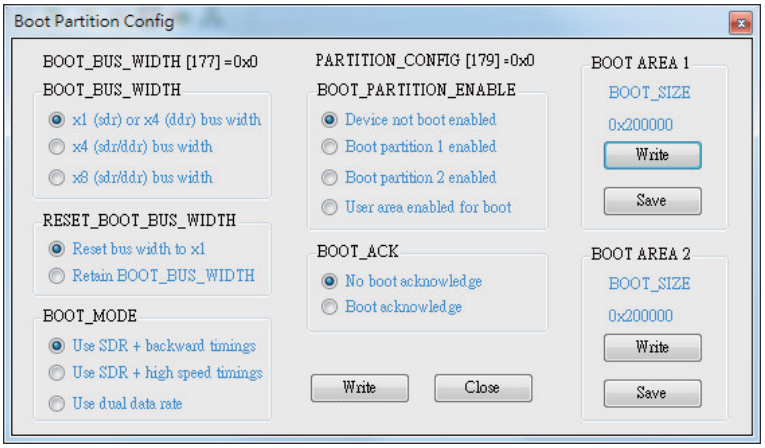


Fig A-11 Boot Partition Config

8. GP Partition Config: To check and set General Purpose Partition and

- ENH_USR parameters of the Master tape on Master Socket. After finishing setting and make sure it is correct, please click the "Config”, and the setting will be write to the master tape on the master socket.
- Modify these parameters will cause unpredictable changes of the data inside Master IC.

Note: Please check the eMMC specification, revise and verify it carefully when using this function. eMMC chip can not be resume after writing Partition setting.

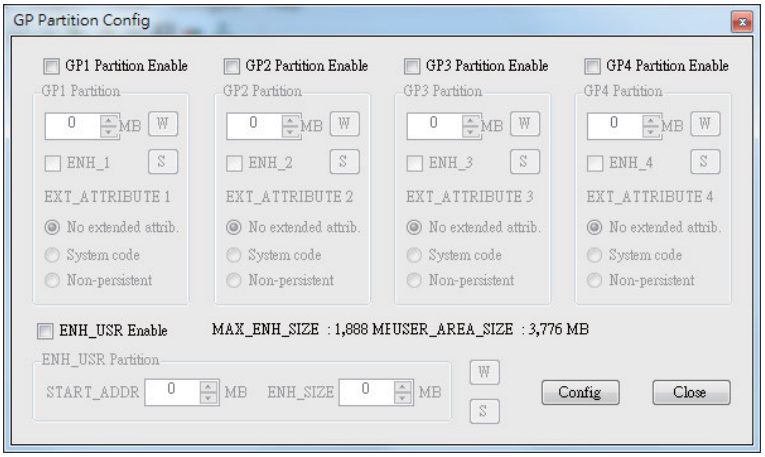


Fig A-12 GP Partition Config

9. Clone Wizard: Copy the data from Master tape on the master socket to generate the project file.
Make Master: Write the BIN files from PC to the areas of Master tape, (such as Bootx, GPx, and User...etc.) or read the the saved files.

Note: Please check the eMMC specification, revise and verify it carefully when using this function. eMMC chip can not be resume after writing Partition setting.

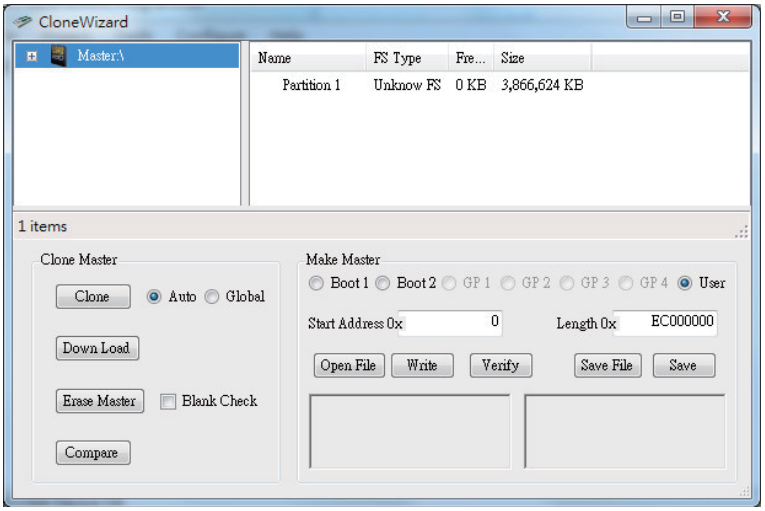


Fig A-13 Clone Wizard

Clone Master Function:

- Clone: Copy chip data from Master Socket and build Project file. You can choose “Auto” to scan each Partition sequentially (Scan the whole areas in FAT32, Ext FAT, NTSF format.)If the format is different, please scan it by pure data. The system will save data and mark data areas, then build Project file. “Global” mode is to scan the whole device by pure data , it includes the deleted files.
- Down Load: Download the project file and write it to the Master tape.
- Erase: Erase the data areas of the IC on the Master Socket, but it won't change the EXTM_CSD content and can't resume the Partition and some singular parameters.
- Compare: Compare the project file from PC, Master tape and SSD. To see whether they are same or not.
- Make Master Function: Boot 1, Boot 2, GP 1, GP 2, GP 3, GP 1, User Choose the Areas
- Start Address: Choose the address of writing and reading. It has to be Hexadecimal and integer multiple of 0x200 (512).
- Length: Set the Bytes of writing and reading .It has to be Hexadecimal and integer multiple of 0x200 (512).
- Open File: Choose the BIN files which will write to the device.
- Write: Select the BIN files to the select areas (Bootx, GPx, User), set address from Start Address field, write the Bytes data from Length field to the Master tape.
- Verify: Verify the chosen BIN file, to check whether it is totally match to the data of the Master tape.
- Save File: Choose the save file(BIN) name after reading the data from the IC.
- Save: Read the Bytes of Length field from (Bootx, GPx, User) and Start Address, then save them to chosen BIN files.

A-5 Usage Example

A-5-1. Copy the project file of the master tape

Step 1. Place the master tape which is verified, on the Master Socket of SU-6808. If the IC is taken from the board, please insert the solder ball first, to make sure the contact of socket and IC are in good condition.

Step 2. Use the ‘2. Make new project’ function from main list:
Choose 'Auto Clone' mode, let the system search the best reading and writing parameters automatically and scan each partition sequentially. (Scan the data areas by FAT32, Ext FAT, NTSF formats.) If there are no such formats, please scan it by pure data. The system will save and mark the data area and build the project file on SSD of the programmer.
Use 'Clone From Master' mode, and get the parameters of Master IC from the database.(Or set it manually.) There are two ways to scan -"Auto" and "Global". In "Auto Mode", it will scan each partition sequentially. (Scan the data areas by FAT32, Ext FAT, NTSF formats.)If there are no such formats, please scan it by pure data. The system will save and mark the data area and build the project file on SSD of the programmer. In Global Mode, it scan the whole device by pure data, which includes the files that are deleted.

Step 3. Use this Project file and program more than one Master tape.

Step 4. Please weld the Master tape to the programmer and test it completely to make sure the production of Master tape is correct.

Step 5. You can also use the software to execute the Clone Master function, which can copy the Project file of Master tape on the PC.

A-5-2. Produce Master Tape in Bin format

Step 1. Place the target blank IC on the Master Socket.

Step 2. Turn on the software and execute the Master Ext CSD function for setting the related register.

Step 3. Execute the "Boot Partition Config" function for setting the related register.

Step 4. If you need to Partition or ENH_USR, please execute GP Partition Config function for related register.

Step 5. Turn on the "Clone Wizard" function window.

Step 6. Write each BIN file to Boot 1, Boot 2, GPx and USER areas.

Step 7. The entire write in action now are for the Master tape on the Master socket of SU-6808. You can Clone Master IC as a project file after writing in all the settings.

Step 8. Please weld the Master tape to the product and test it completely. Make sure the production of the Master tape is correct.

Step 9. If the testing is OK, you can use the project file (Step 7). But if the testing is fail, please delete the project file and make sure the setting and the source of BIN file are correct. Then choose a new target file and start again from step 1. The IC that is failing testing can be used for other purposes after inserting the solder balls. (However, the Partition setting can not be resuming.)

A-5-3. Change partial data of the eMMC

(Only for replacing few Bytes value. If you want to replace the capacity or move it, you still have to modify it from Source Code.)

Step 1. Place the target IC on the Master Socket.

Step 2. Use the software to execute the Clone Wizard function.

Step 3. Choose User (or boot1/2, GPx), use [Save File] & [Save] to read the areas where you want to modify and save it as BIN file.

Step 4. Use any HEX editor software to loading the BIN file. It can find the areas and edit it. However, it can only overwrite and modify the data; it can not increase nor decrease the capacity of the data. Please save the file or save as other file after modifying it.

Note: Start Address / length has to be the integer multiple value of 0x200(512).

Step 5. Use SU-6808 connection software, choose [Open File] & [Write] to write the modified BIN files to the Master IC.

Step 6. Please weld the Master tape to the product and test it completely. Make sure the production of the master tape is correct.

A-5-4. The reason why Check Sum are different and Verify Fail between master tape IC and Clone copy IC

Step 1. The data types from Master and Slave IC are different, one could be 0x00 and another could be 0xFF.

Step 2. While testing and producing Master IC on the PCB board, it could have executed Delete File function on File System. The usual Delete File function is just mark on the File system; it has not erased all contents.
If you choose "Auto mode" while Clone Master, it will skip the delete files automatically. So the function is normal, but check sum is different. If you want them to be all the same, please choose ‘2. Clone from Master’\ ‘2. Global mode’ while Clone Master. So that it can clone the data with the delete File data together.

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